

APPENDIX C
ORIENTATION DATA

Table 3: Fissure cave primary orientations grouped by physiographic province.

Central Plateau	Median Vally	North-Central Highland	Northern Lowland	Southeastern Ridge
Orientation	Orientation	Orientation	Orientation	Orientation
314	19		323	247
258	261			239
60	293			266
74	200			309
219	234			130
				277
				74

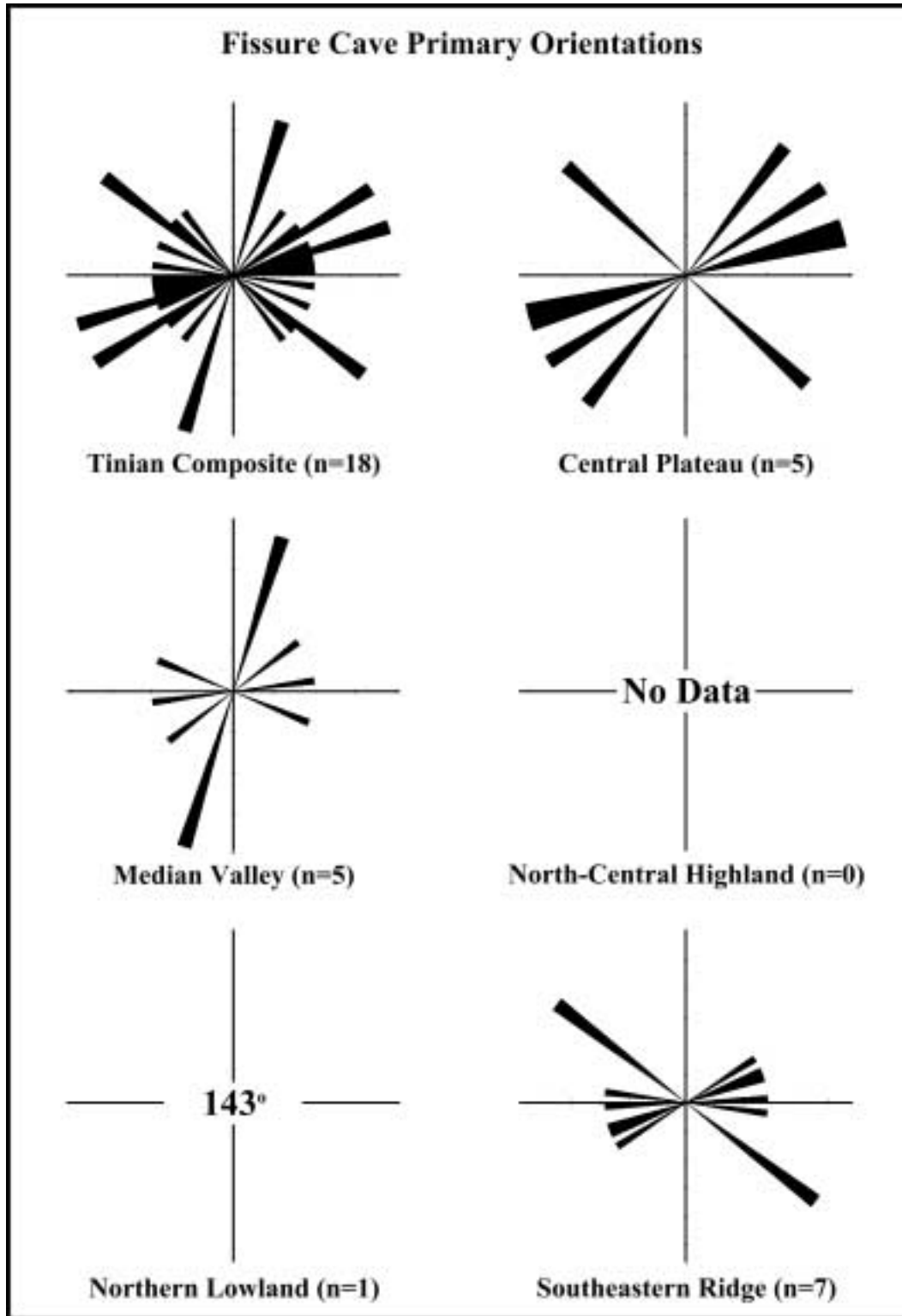


Figure 154: Rose diagrams of fissure cave primary orientations grouped by physiographic province.

Table 4: Fissure cave segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)	
298	5.1		19	9.6								61	29.0	
192	6.8		212	8.1								76	20.2	
359	1.5		61	5.9								66	80.5	
320	9.0		61	9.6								57	17.3	
236	2.6		34	11.9								62	15.5	
265	2.4		24	12.6								61	57.4	
343	3.8		358	8.5								89	41.9	
232	6.7		40	4.4								55	29.6	
260	19.6		24	25.9								60	12.0	
241	4.8		352	8.9								271	9.2	
243	10.8		244	7.8								238	13.2	
292	18.0		4	20.7								311	2.9	
63	3.4		355	5.6								270	3.4	
97	14.3		39	7.4								228	2.9	
223	6.2		71	5.9								274	3.9	
			49	7.4								231	12.6	
			112	8.1								222	11.8	
			14	7.4								23	3.7	
			177	4.4								14	3.7	
			200	2.6								236	3.2	
			217	4.4								213	13.9	
			228	4.8								77	4.1	
			211	8.9								107	8.8	
			235	3.7								68	10.5	
			359	6.7								304	17.8	
			359	10.4								306	23.0	
			217	4.4								241	4.0	
			247	3.0								321	19.2	
			2	4.6								57	4.9	
			340	2.2								113	5.8	
			238	3.8								119	3.8	
			147	2.7								83	25.3	
			272	5.7								165	4.5	
			251	5.2								62	45.8	
			274	6.8								74	20.9	
			140	13.5								38	12.8	
			200	43.5								40	9.4	
			72	2.5								46	16.2	
			83	5.6								77	14.3	
			62	6.0								53	7.1	
			312	3.1								50	7.4	

Table 4 (continued): Fissure cave segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)
			262		3.0							64		6.8
			354		5.0							88		16.2
			24		3.3							123		4.1
			339		5.2							159		5.7
			334		3.4							112		15.1
			56		2.0							82		21.9
			270		3.6							68		7.6
			14		2.7							154		3.5
			213		2.3							160		3.3
			318		5.8							57		5.5
			267		2.0							79		7.4
			44		11.8							59		10.1
			332		5.0							105		11.0
			66		5.7							77		20.9
			32		13.4							77		3.8
			360		9.2							112		5.8
			308		13.5							87		17.5
			119		5.5							97		4.1
			96		8.4							66		5.4
			70		6.7							102		9.0
			246		18.9									
			308		3.3									
			179		1.1									
			246		0.3									
			249		2.0									
			222		7.5									
			348		0.8									
			263		2.7									

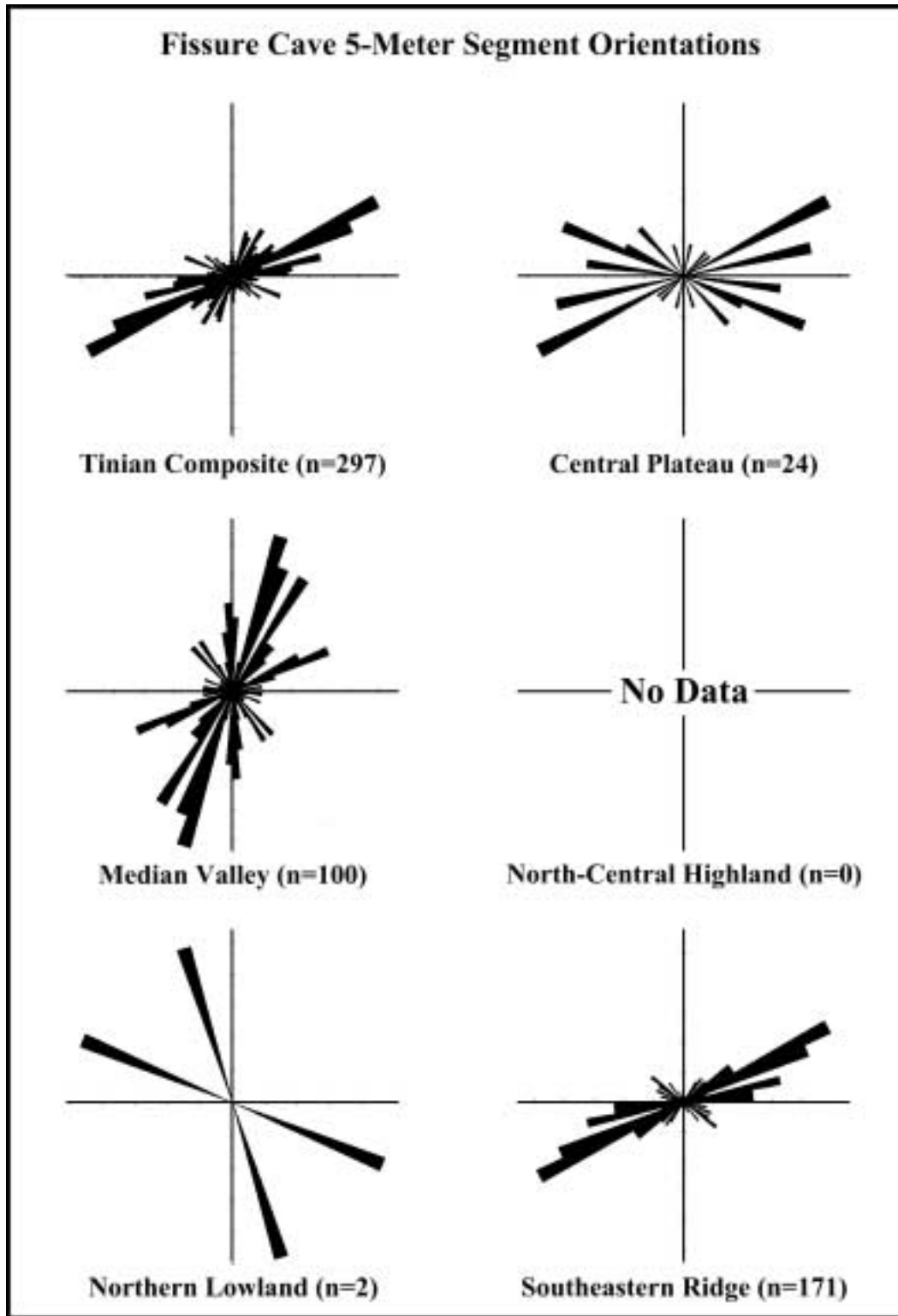


Figure 155: Rose diagrams of fissure cave, five-meter segment orientations grouped by physiographic province.

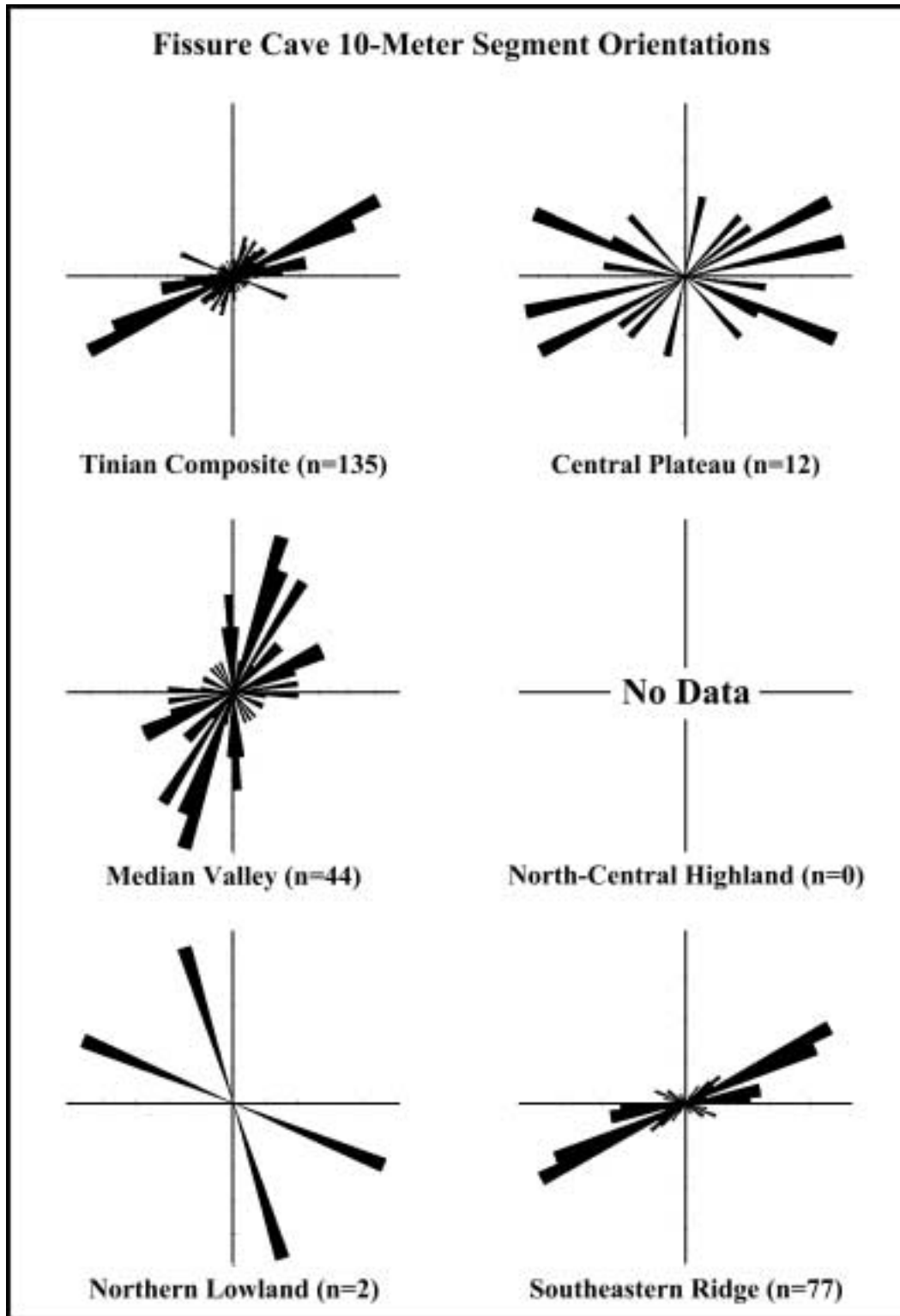


Figure 156: Rose diagrams of fissure cave, ten-meter segment orientations grouped by physiographic province.

Table 5: Mixing zone cave primary orientations grouped by physiographic province.

Central Plateau	Median Vally	North-Central Highland	Northern Lowland	Southeastern Ridge
Orientation	Orientation	Orientation	Orientation	Orientation
301	270	102	147	318
182	40	123		176
147	194	142		126
258	350	178		80
229	174	179		130
253	211	161		313
234	95	77		279
263	30	36		245
75	257			122
88	131			279
51	249			72
194	108			118
60	311			297
336	287			279
12	268			226
213	329			22
221	95			231
203	102			176
181	90			130
158	257			115
333	250			194
332	310			206
115	332			2
260	73			135
150	36			327
34	48			281
89	41			333
293				313
93				321
107				250
105				320
289				278
85				304
294				188
136				102
210				149
220				309
250				54
98				54
64				341
75				330
39				302
50				279
41				329
340				1
34				308

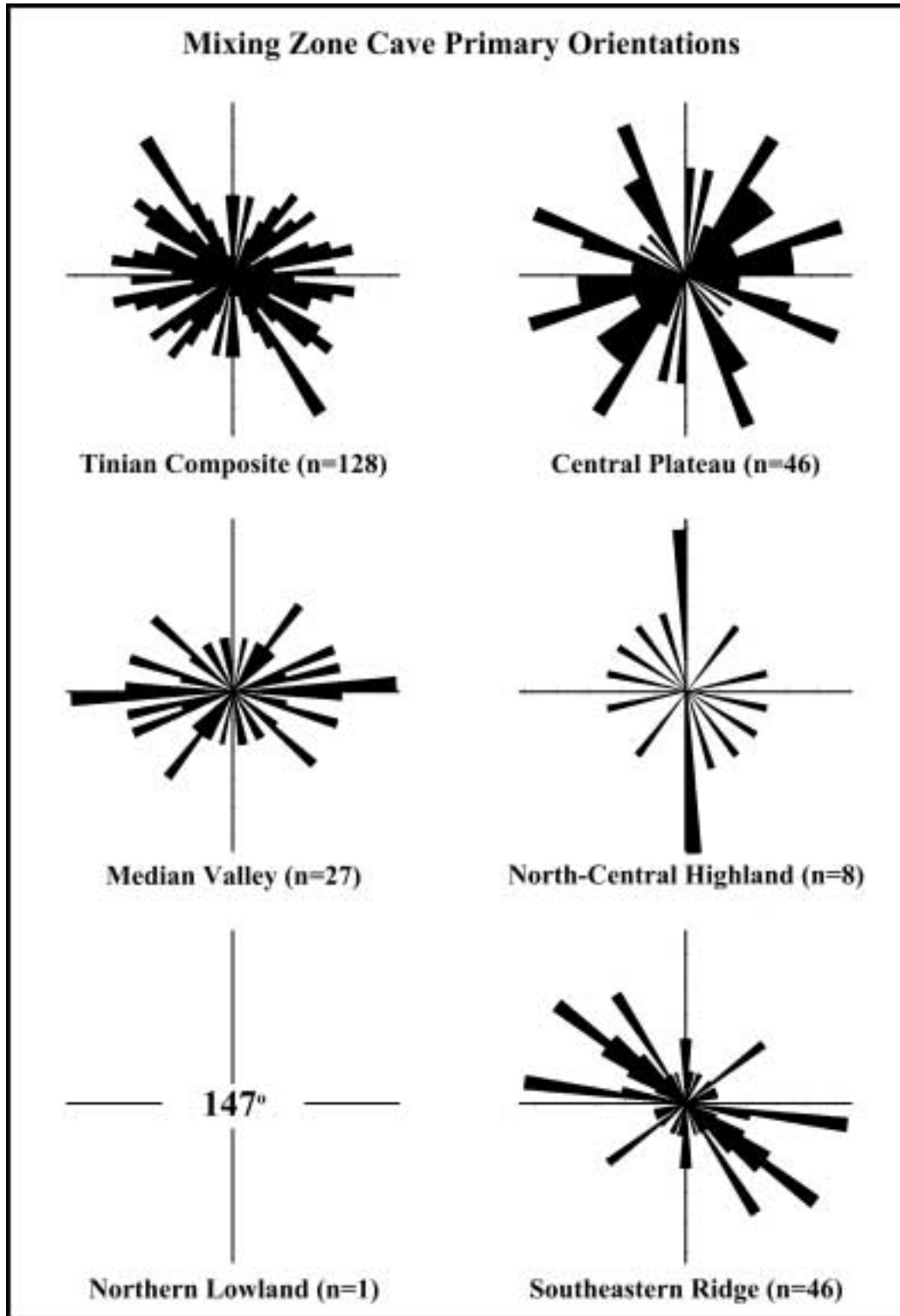


Figure 157: Rose diagrams of mixing zone cave, primary orientations grouped by physiographic province.

Table 6: Mixing zone cave segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)
301		16.6	37		1.7	102		12.6	155		42	316		7.5
204		42.0	77		1.3	142		8.7	189		6.125	47		11.8
132		3.2	89		2.9	178		1.3	79		5.25	140		4.0
179		8.4	116		6.9	179		1.3	170		6.875	176		7.4
55		6.1	66		6.6	250		3.0				18		6.7
108		3.6	88		2.2	10		5.5				91		2.1
188		6.9	195		3.7	68		4.8				147		3.9
258		12.2	40		4.1	21		5.3				80		4.9
234		14.2	80		4.3	166		3.5				135		1.1
201		13.6	42		5.9	153		4.4				107		1.2
262		3.5	59		6.0	181		2.9				130		3.0
238		1.9	214		18.1	96		2.1				313		10.1
268		1.2	101		20.2	77		13.4				355		3.0
256		1.6	194		16.2	68		11.6				169		2.1
234		9.9	76		17.5	171		7.9				153		2.9
231		15.4	350		13.8	229		22.6				75		4.0
276		15.8	335		4.5	34		4.9				83		10.2
257		3.0	146		10.1	22		11.5				352		6.5
248		2.7	67		8.8	62		6.3				344		6.0
42		9.9	147		13.6	35		10.9				63		11.1
75		10.8	149		16.9							328		4.8
285		9.9	211		17.2							166		3.6
311		5.5	148		20.6							298		2.0
246		4.4	108		30.1							90		1.4
311		4.6	74		20.2							24		9.9
45		5.3	116		13.0							97		3.1
36		10.7	181		12.8							69		2.5
269		6.9	88		9.7							122		8.4
194		14.7	134		14.2							64		3.0
271		6.2	28		14.0							182		18.2
50		12.6	247		17.6							279		9.3
68		15.2	287		5.0							351		6.9
92		6.9	18		7.7							252		3.8
129		15.2	291		11.7							351		6.4
158		26.6	33		21.2							111		3.25
31		9.5	351		10.8							126		5.08
101		55.1	212		13.2							144		11.92
101		12.4	280		8.0							68		17.58
90		18.2	171		16.7							143		2.25
8		20.7	274		14.3							297		5.5
213		1.5	146		11.5							190		29.5
215		0.9	131		16.8							279		64.9

Table 6 (continued): Mixing zone cave segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)	
221	6.4		90	18.3								56	28.2	
182	0.7		108	18.3								316	10.8	
197	5.1		49	4.2								142	12.6	
214	5.0		249	4.6								153	18.4	
181	4.2		345	19.8								186	30.0	
158	1.3		242	13.0								40	24.6	
330	12.0		257	6.9								266	26.2	
338	5.2		28	7.0								177	13.4	
284	3.7		26	14.7								36	10.8	
254	11.6		101	51.3								21	24.8	
355	13.8		313	43.6								30	19.3	
308	14.5		343	34.7								231	19.0	
110	1.3		18	44.2								178	6.1	
153	2.6		5	32.8								102	15.4	
168	2.5		155	34.3								166	23.1	
195	1.9		146	29.4								112	6.8	
214	2.1		52	15.5								46	13.9	
220	2.2		89	18.9								152	8.9	
235	2.1		323	21.5								166	12.4	
178	4.5		203	7.2								234	9.8	
214	6.4		278	10.9								129	2.7	
283	7.2		268	54.7								210	4.0	
31	9.6		332	10.9								201	5.9	
48	11.9		121	38.9								276	6.6	
28	10.7		185	24.5								135	6.3	
64	9.7		257	7.6								2	4.4	
232	7.7		288	5.7								23	7.1	
247	5.7		309	6.7								66	12.3	
150	8.9		335	6.0								198	11.6	
91	19.3		290	7.6								169	7.9	
188	23.8		173	3.6								336	1.6	
268	13.8		354	5.2								10	3.1	
212	14.4		312	9.5								95	3.8	
180	5.7		260	6.2								128	6.8	
81	6.3		249	9.0								176	14.5	
34	5.9		281	2.6								223	9.3	
165	6.5		350	2.9								157	2.2	
230	9.7		268	6.7								54	3.6	
271	14.8		298	11.9								333	4.0	
356	6.0		346	26.7								301	2.0	
192	20.7		333	8.1								43	1.8	
111	10.7		335	0.3								106	17.1	

Table 6 (continued): Mixing zone cave segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)	Length	Orientation	Segment Length (m)
204		9.1	330		19.5							284		4.4
298		49.1	58		6.0							347		11.6
47		37.6	253		4.3							316		4.2
34		27.8	328		6.4							254		15.1
110		49.1	284		6.3							228		13.3
66		19.2	262		7.4							268		12.3
283		3.6	27		22.1							176		24.5
198		9.5	92		1.2							187		27.5
93		4.5	72		1.0							188		24.5
107		15.4	73		1.2							320		9.0
105		14.3	27		1.4							202		6.1
288		16.4	95		20.6							286		4.8
345		8.9	380		68.4							308		2.7
85		43.0	93		83.1							15		7.6
294		12.0	298		15.6							278		5.6
278		25.0	156		27.2							168		10.9
327		16.8	76		22.2							191		3.1
13		10.2	90		59.4							102		1.8
185		10.8	288		53.1							236		5.5
238		16.2	252		20.9							149		14.9
39		11.0	258		47.2							309		10.7
50		11.0	337		53.7							308		2.2
41		16.1	223		15.9							1		2.2
340		11.0	109		9.3							329		5.7
34		11.9	164		10.4							279		3.8
192		14.3	237		5.8							54		16.2
258		13.5	118		7.6							47		6.5
290		9.5	36		13.5							341		1.6
152		15.4	320		5.7							330		2.2
248		40.2	332		12							27		10.5
292		15.9	73		38.4							306		5.9
236		4.7	202		21.1									
194		5.4	68		23.1									
176		7.1	49		22.6									
158		10.3	83		25.6									
60		28.4	41		38.4									
263		27.0	13		19.7									
144		36.6	294		10.8									
221		16.5	320		19.2									
			84		11.3									
			36		39.3									
			22		21.5									

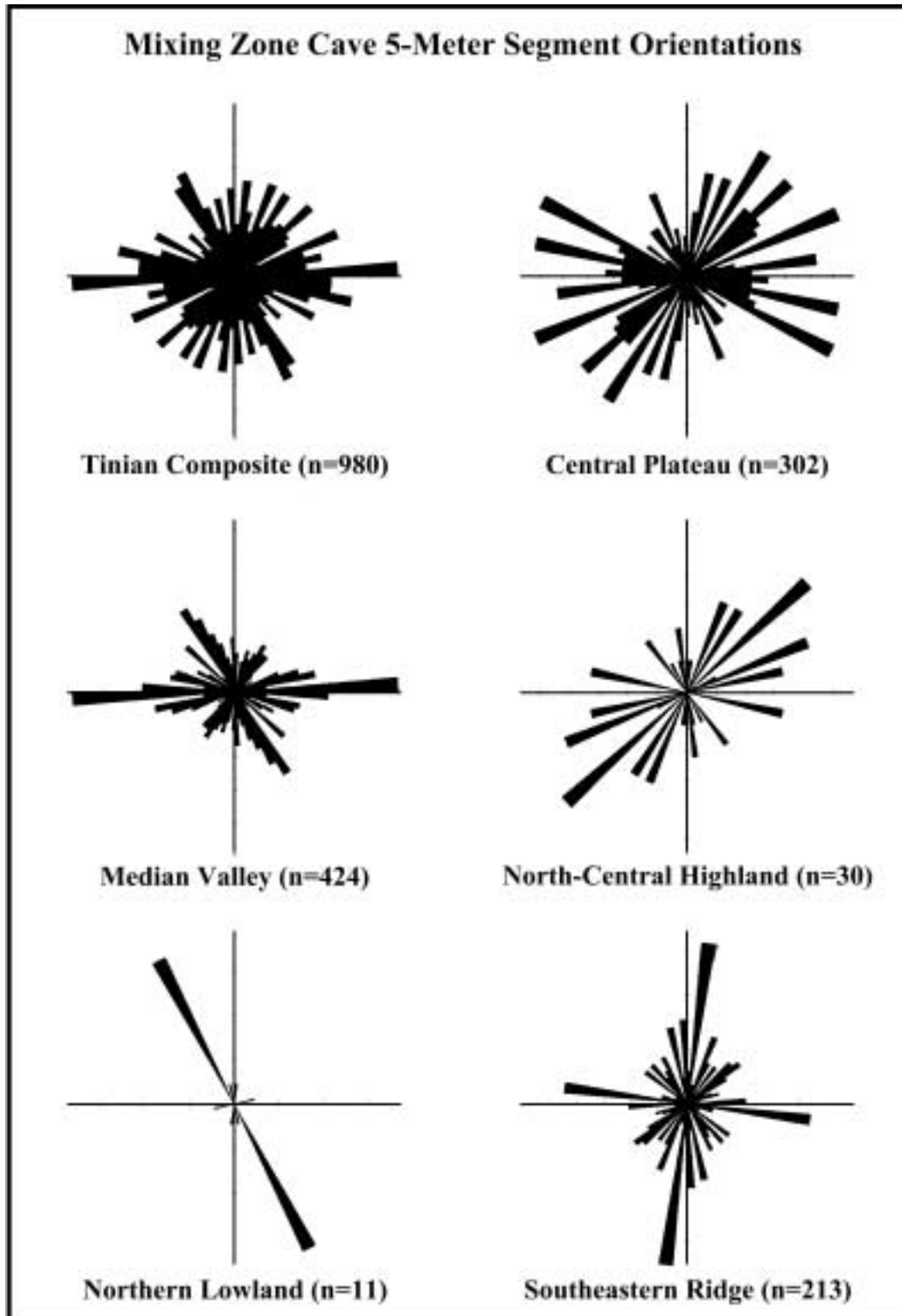


Figure 158: Rose diagrams of mixing zone cave, five-meter segment orientations grouped by physiographic province.

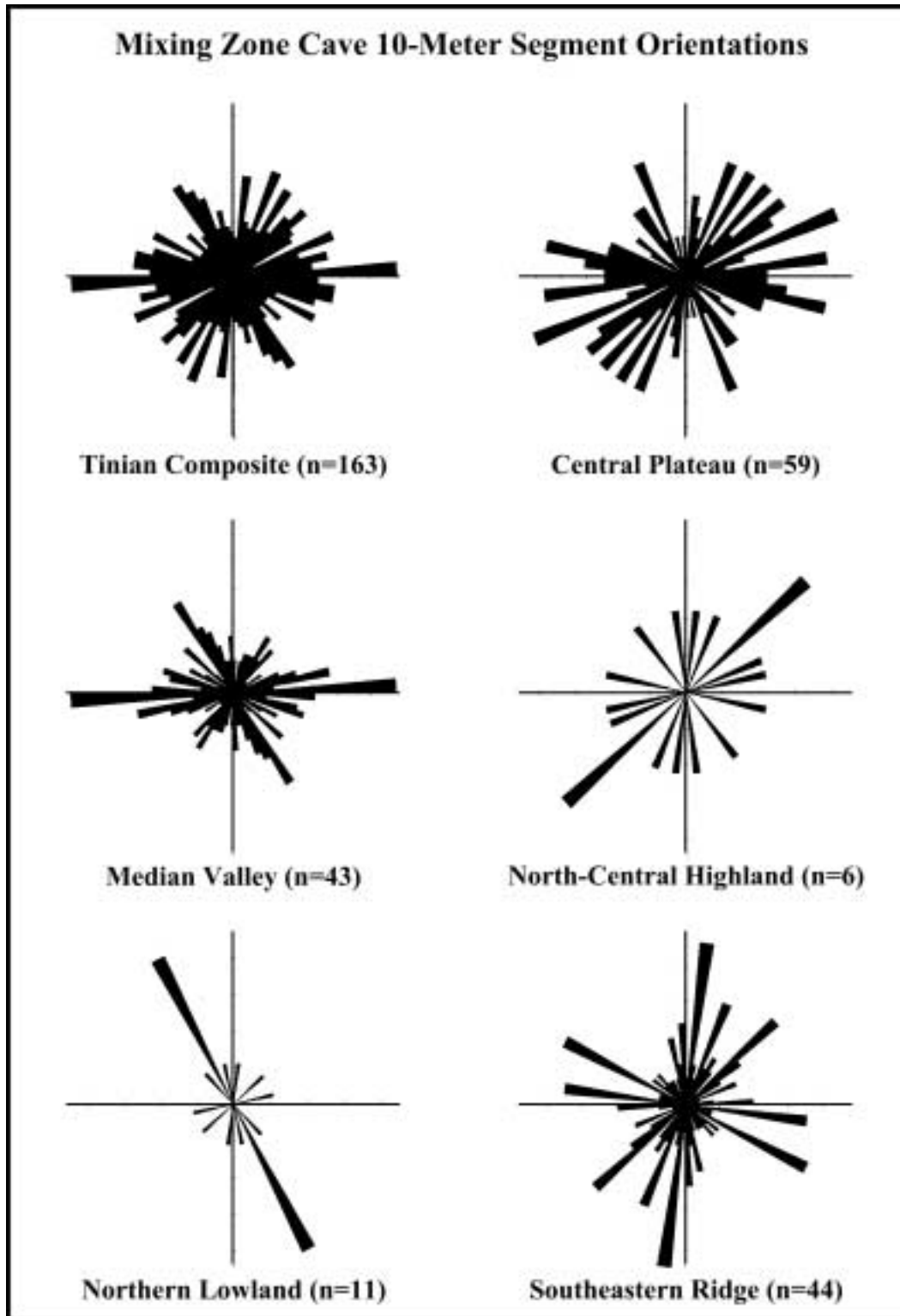


Figure 159: Rose diagrams of mixing zone cave, ten-meter segment orientations grouped by physiographic province.

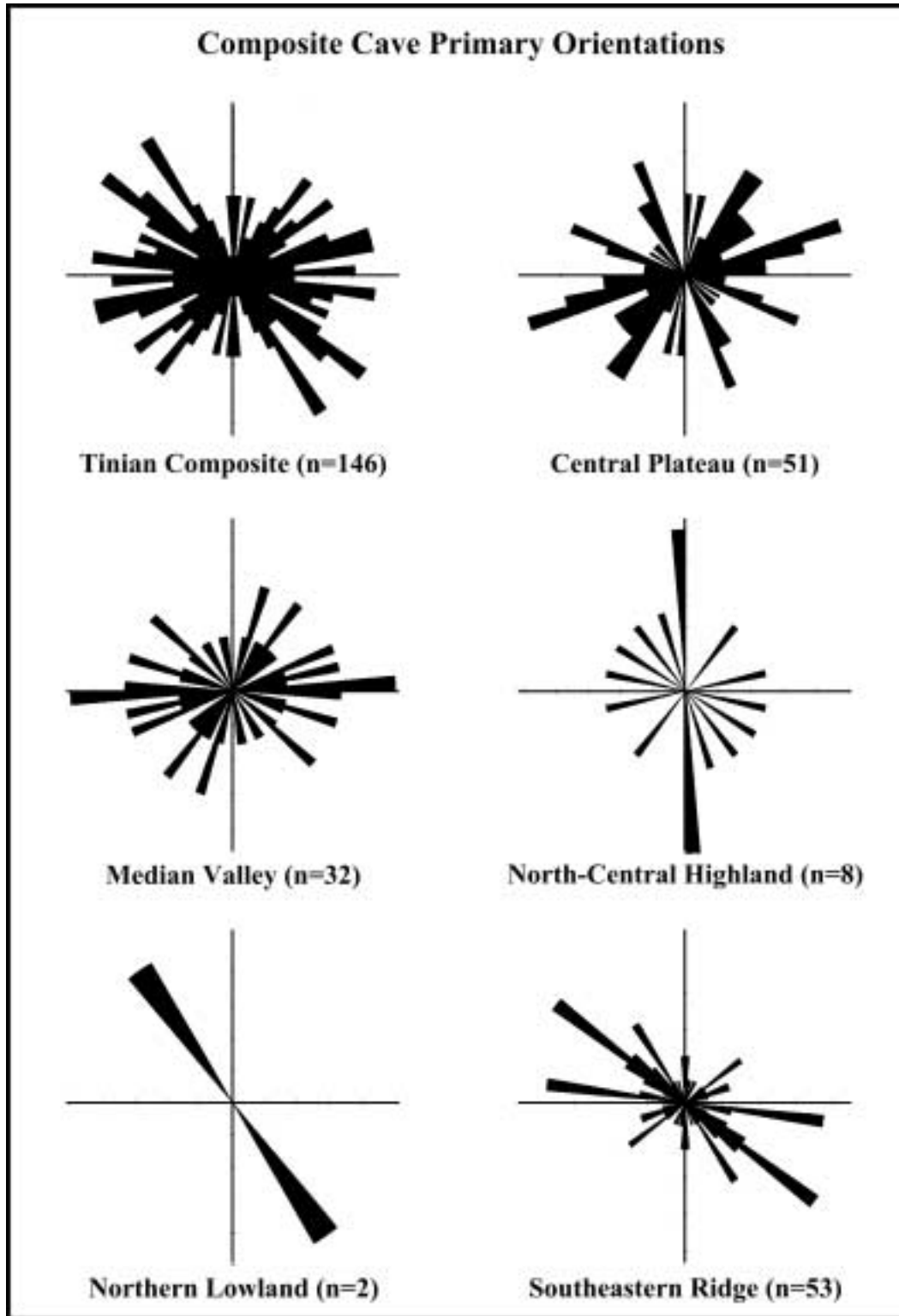


Figure 160: Rose diagrams of composite cave, primary orientations grouped by physiographic province.

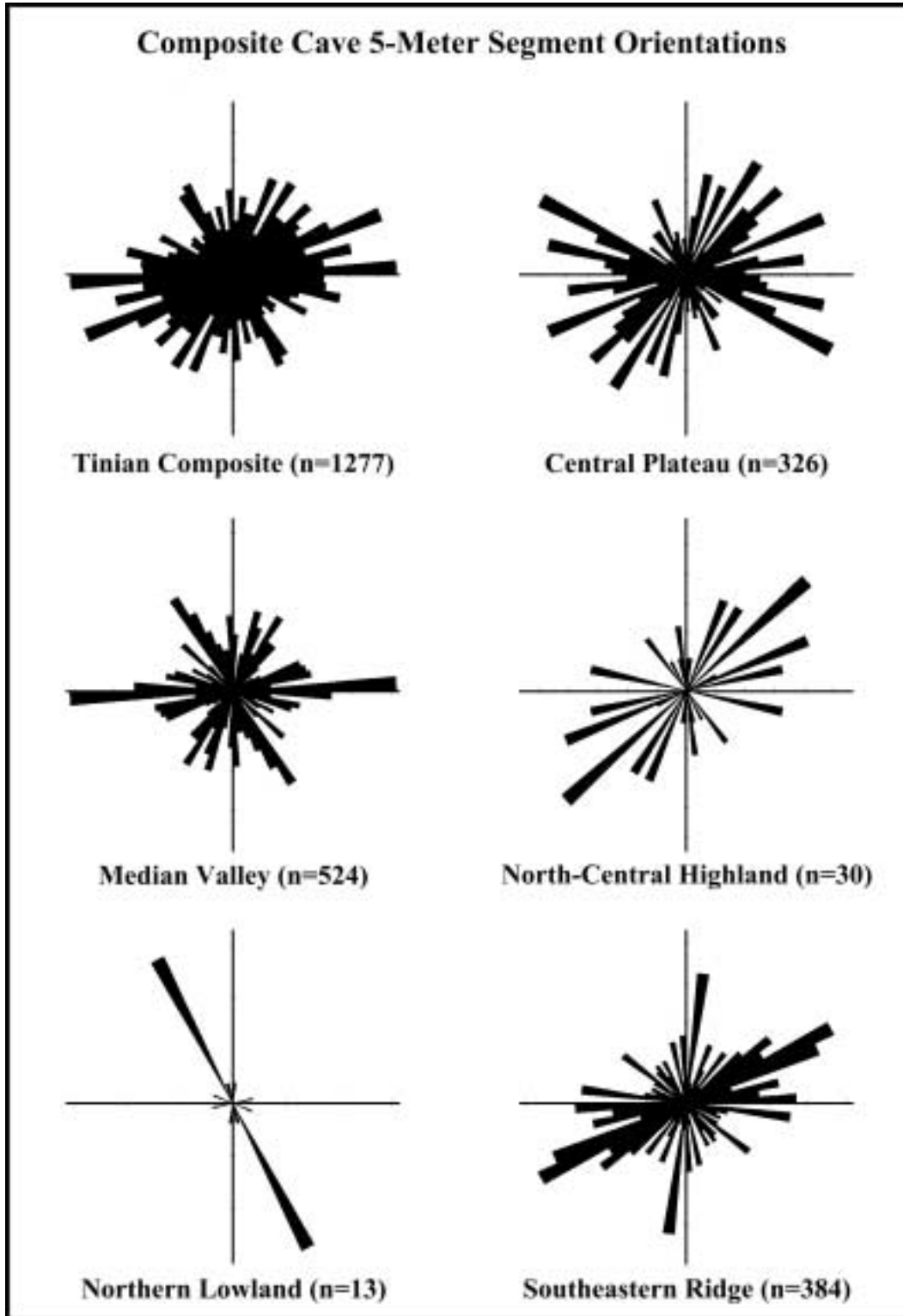


Figure 161: Rose diagrams of composite cave, five-meter segment orientations grouped by physiographic province.

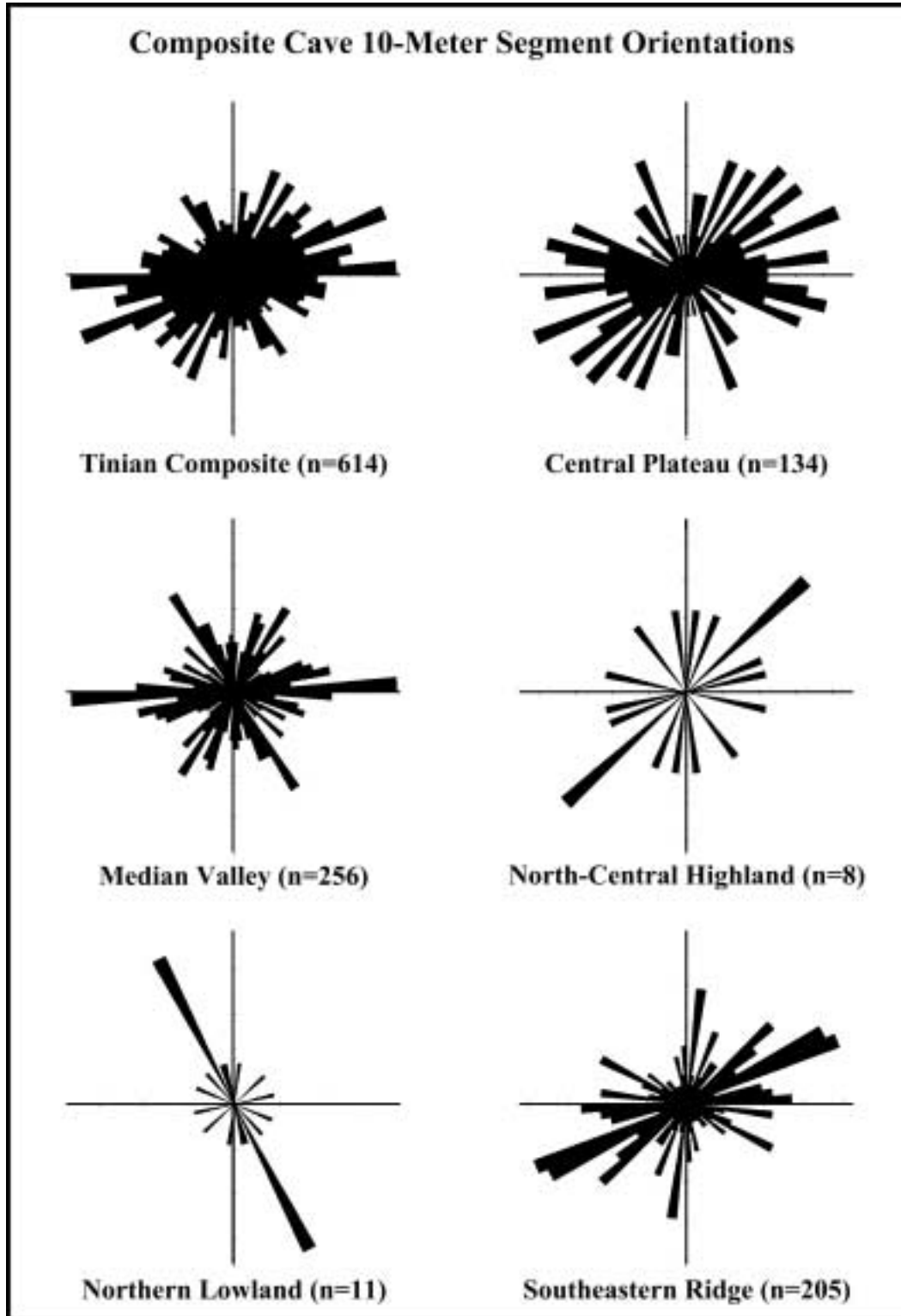


Figure 162: Rose diagrams of composite cave, ten-meter segment orientations grouped by physiographic province.

Table 7: Mixing zone cave, entrance width segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)	
205	36.0		354	1.9		225	20.9					45	10.4	
258	0.9		86	32.7		267	11.8					264	21.7	
213	5.5		123	10.3		271	1.8					196	6.0	
194	4.6		256	22.2		67	16.5					197	3.9	
187	7.4		151	33.9		150	11.9					216	19.4	
343	49.6		156	10.8								240	17.5	
336	8.7		176	25.2								216	4.8	
301	24.4		189	21.8								201	21.9	
289	20.7		329	9.8								203	6.8	
284	0.0		181	16.5								8	18.1	
96	37.2		230	4.4								24	34.9	
300	1.5		178	75.0								29	19.7	
100	1.9		157	29.0								2	81.8	
278	6.4		157	17.4								208	21.7	
291	6.9		26	10.1								189	19.8	
254	6.6		66	3.0								325	5.0	
247	5.3		118	44.0								181	14.2	
226	7.2		344	17.8								230	3.8	
249	10.5		325	19.8								233	8.1	
13	2.1		149	41.5								219	1.6	
341	4.8											214	4.5	
254	3.2											214	4.5	
300	37.1											194	6.4	
200	10.4											297	2.2	
195	6.4											242	3.2	
40	8.6											192	12.4	
74	10.2											251	3.7	
79	22.1											239	13.5	
12	30.4											174	15.3	
187	16.6											224	5.6	
229	23.4											160	4.3	
274	10.9											204	7.9	
301	6.9											276	9.1	
318	5.9											9	2.2	
135	12.1											229	24.4	
262	13.6											227	13.0	
110	17.7											92	5.1	
305	12.7											222	4.9	
154	21.9											190	5.3	
35	40.7											211	10.6	
												76	13.4	
												241	10.9	

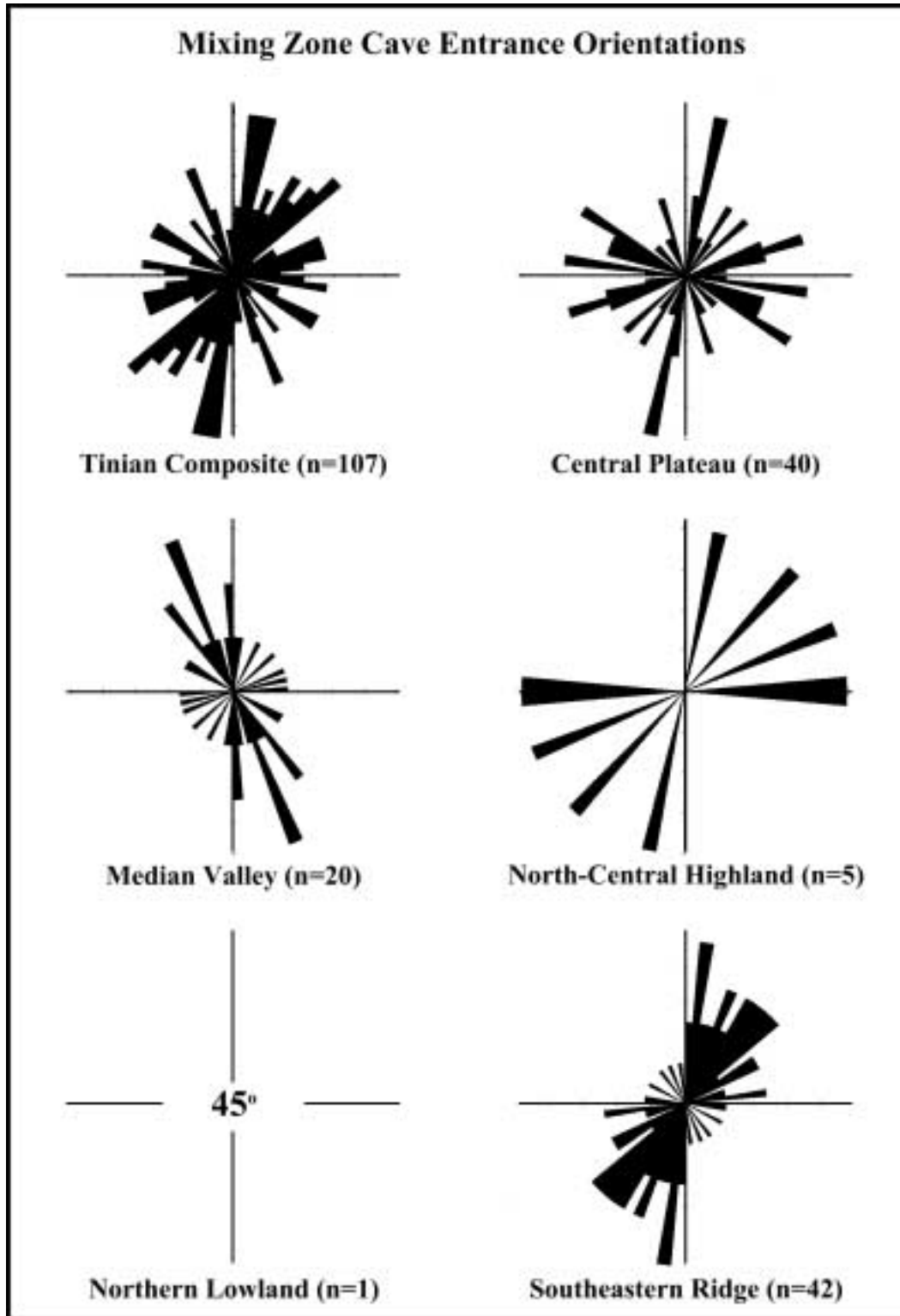


Figure 163: Rose diagrams of mixing zone cave entrance width orientations grouped by physiographic province.

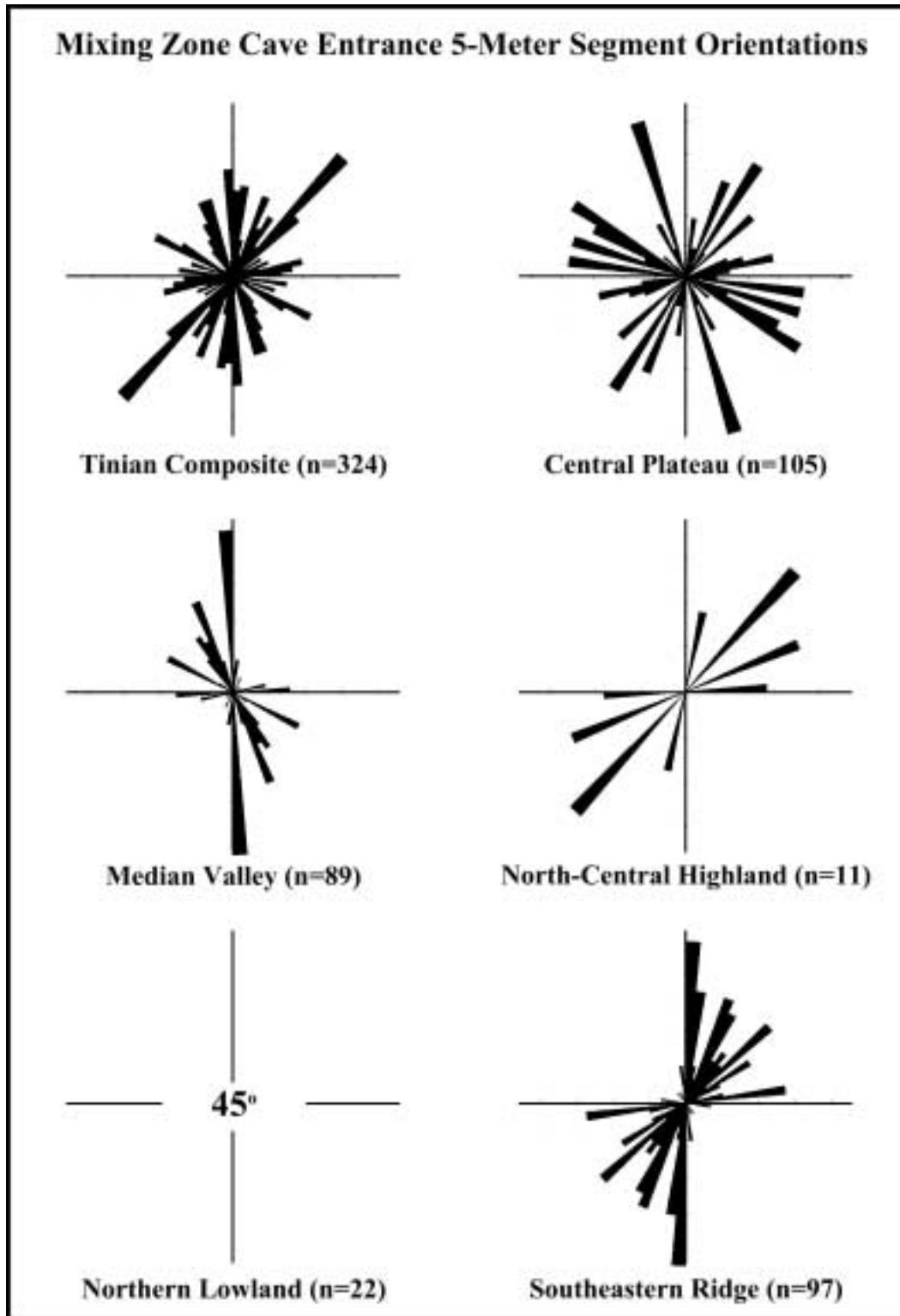


Figure 164: Rose diagrams of mixing zone cave entrance width, five-meter segment orientations grouped by physiographic province.

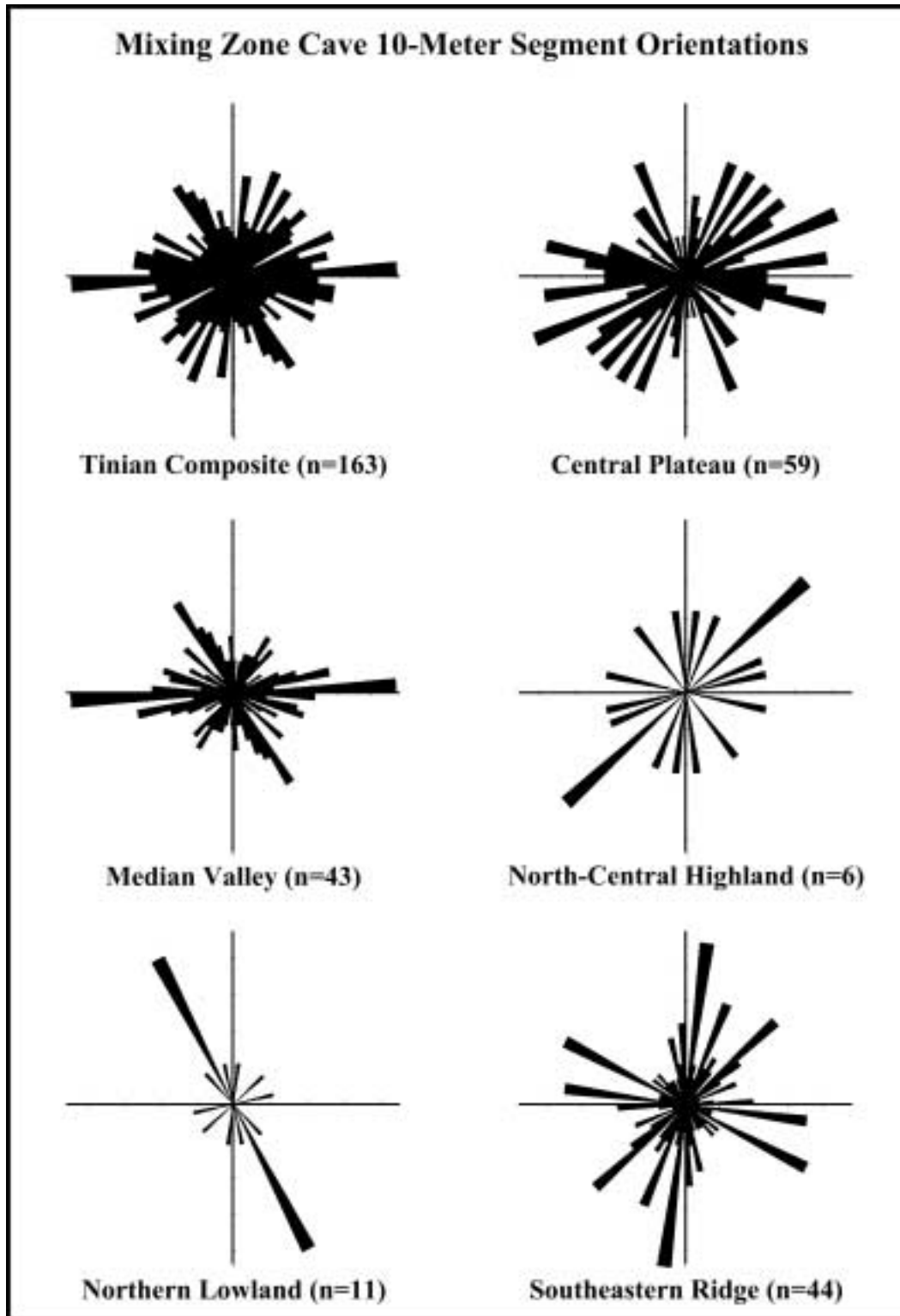


Figure 165: Rose diagrams of mixing zone cave entrance width, ten-meter segment orientations grouped by physiographic province.

Table 8: Mixing zone cave, penetration segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)	
310	22.2		90	17.9		120	10.9		330			150	9.5	
3	12.2		11	17.0		342	7.6					354	7.5	
138	3.6		33	3.9		1	1.3					271	6.2	
284	7.6		183	10.7		171	4.7					287	1.6	
277	21.4		20	10.5		269	13.8					306	5.5	
238	17.3		46	38.8		37	32.7					135	11.4	
246	3.5		81	51.1								111	5.3	
46	17.2		211	32.1								171	6.8	
34	10.7		101	0.5								293	6.6	
9	14.8		114	16.2								82	9.6	
171	35.1		70	5.8								279	9.5	
210	1.6		78	19.4								122	45.3	
204	1.1		125	4.4								278	63.3	
202	5.7		107	49.5								228	35.8	
186	5.2		304	30.9								284	8.6	
181	4.1		135	16.9								133	26.6	
172	1.7		336	24.9								337	8.8	
149	20.0		269	80.8								24	46.3	
354	13.3		81	49.3								200	17.4	
272	1.8		82	7.5								338	12.8	
304	7.0		131	8.8								294	3.8	
329	9.2		141	12.5								109	6.4	
35	65.1		223	29.5								179	4.5	
108	3.6		238	18.3								96	12.5	
300	4.8		220	36.3								136	2.1	
295	13.8		74	34.0								167	2.6	
329	7.7											117	7.6	
334	11.8											153	4.3	
13	7.0											135	21.0	
292	13.4											249	40.4	
304	23.8											149	9.5	
190	11.5											85	5.1	
196	13.6											129	3.4	
243	6.2											167	10.9	
210	19.2											279	2.0	
247	14.9											154	16.1	
215	16.4											152	9.9	
21	13.8											197	2.2	
64	11.0											147	5.9	
108	41.0											115	3.8	
251	15.0											136	7.8	
287	46.9											181	5.1	
												166	5.1	

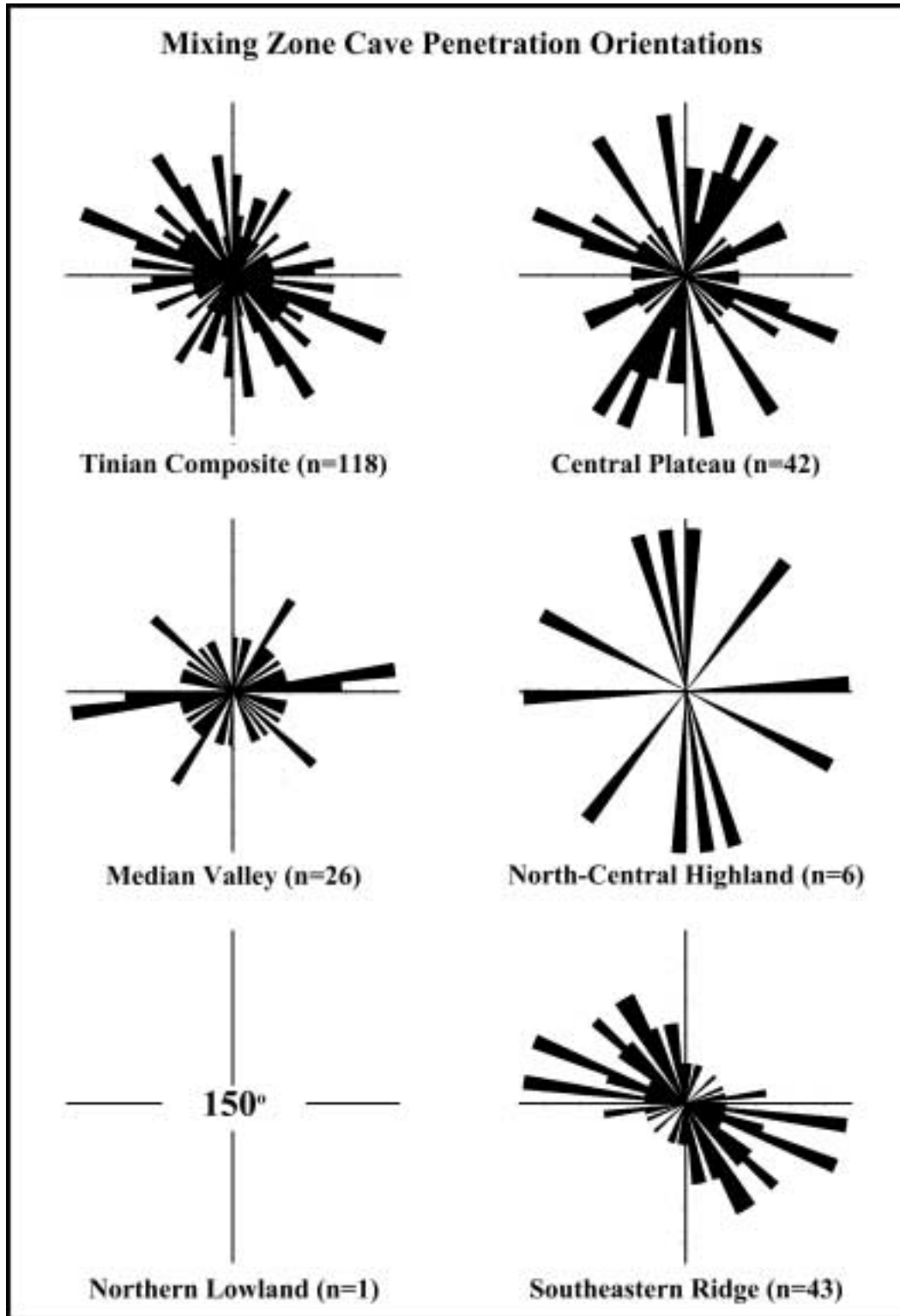


Figure 166: Rose diagrams of mixing zone cave penetration orientations grouped by physiographic province.

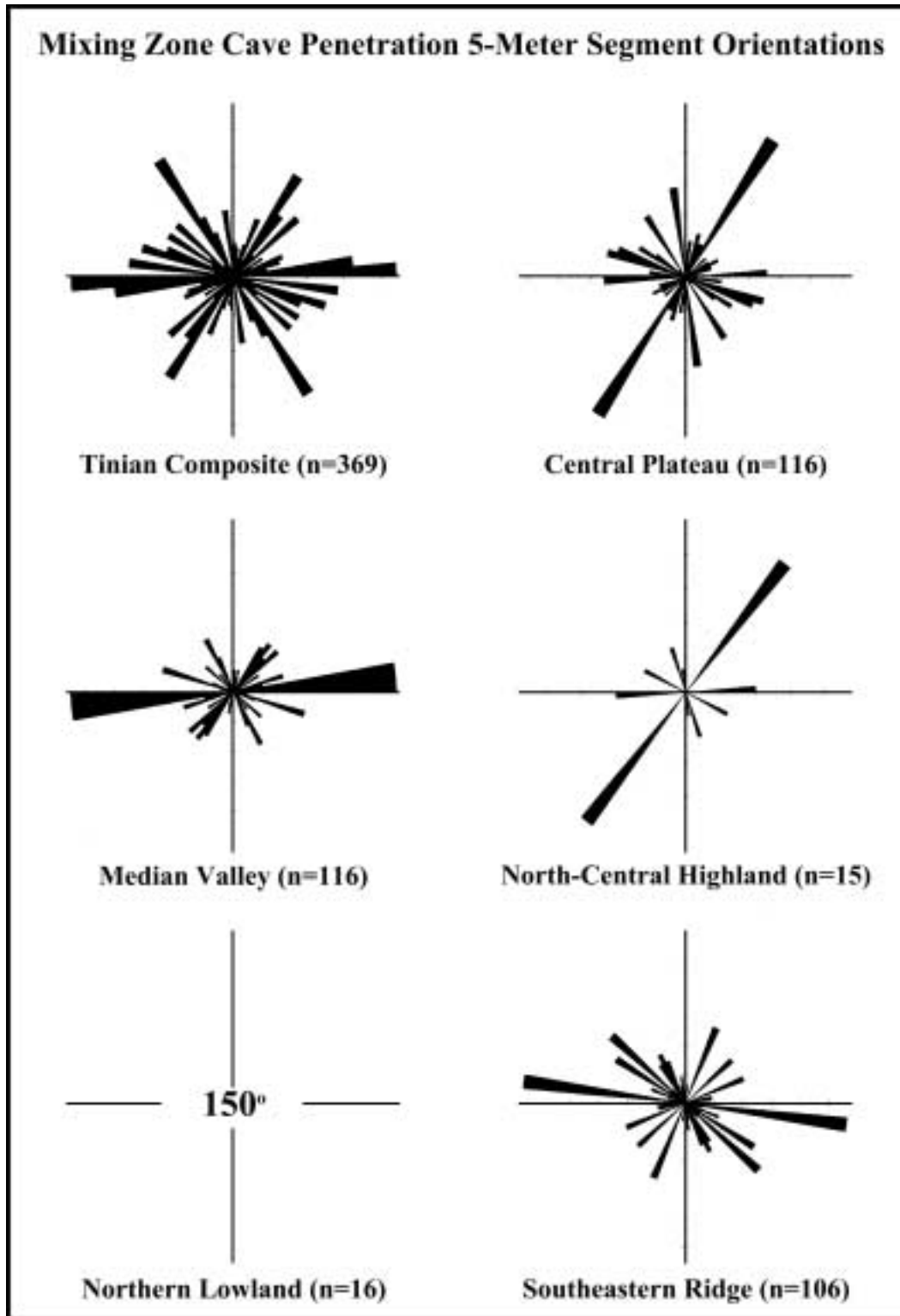


Figure 167: Rose diagrams of mixing zone cave penetration, five-meter segment orientations grouped by physiographic province.

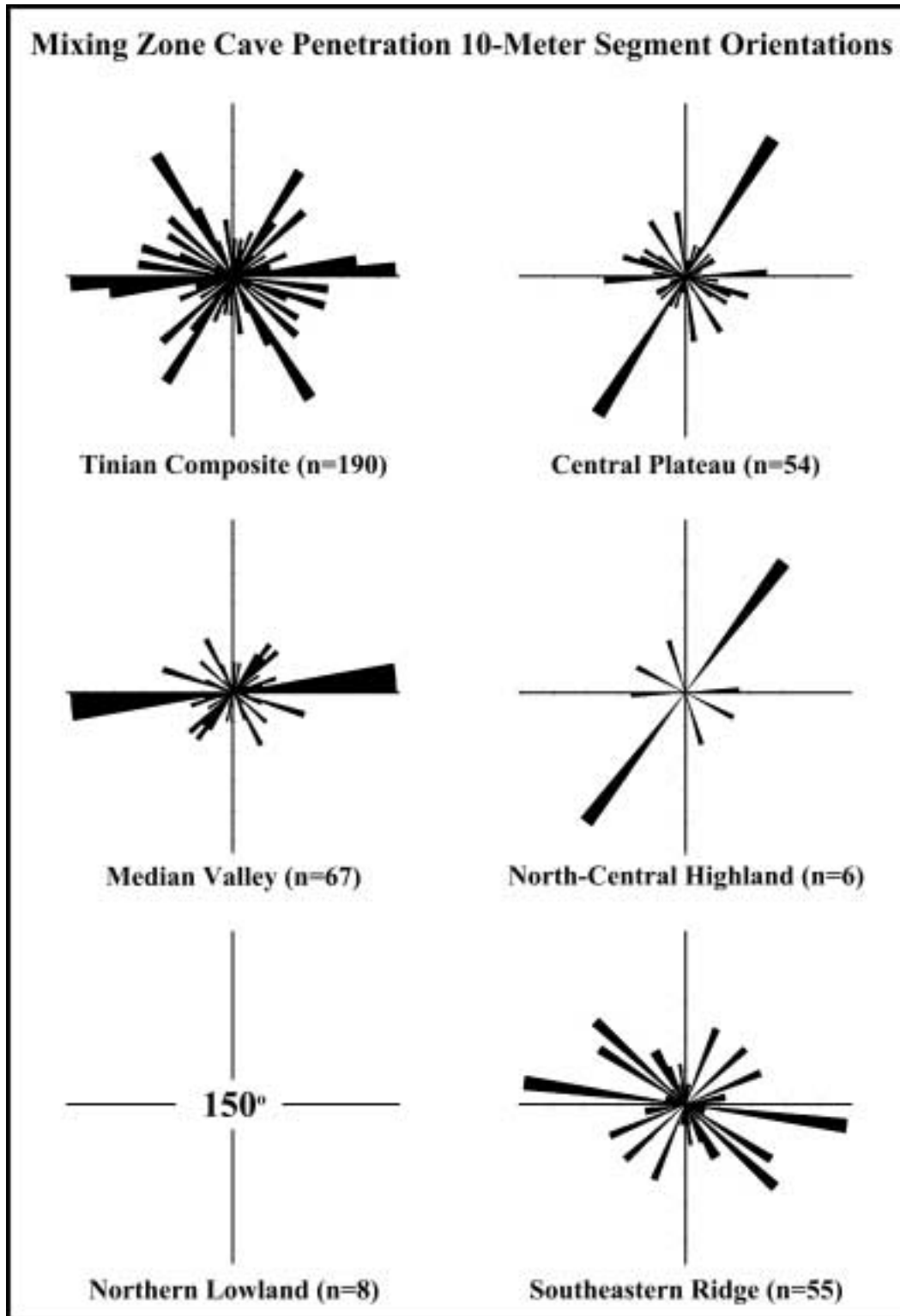


Figure 168: Rose diagrams of mixing zone cave penetration, ten-meter segment orientations grouped by physiographic province.

Table 9: Mixing zone cave, maximum width segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)		Length Orientation	Segment Length (m)	
206	42.0		345	7.5		225	20.9		45			45	11.7	
258	9.0		86	32.7		267	11.8					264	21.7	
213	5.5		123	10.3		271	1.6					196	7.4	
222	7.3		258	22.2		87	16.5					197	3.9	
202	11.5		290	8.6		193	11.5					216	19.4	
343	49.6		150	42.4		307	10.9					240	17.5	
336	9.7		156	19.7								38	6.4	
301	24.4		308	15.2								261	21.5	
289	20.7		176	25.2								203	6.6	
253	13.1		13	27.7								7	18.4	
276	53.3		325	5.8								197	20.7	
308	1.5		154	21.7								24	34.9	
100	1.9		215	5.0								2	51.8	
278	5.4		21	30.7								128	27.4	
291	6.9		259	14.3								209	21.7	
254	5.6		210	6.9								35	34.8	
247	5.3		57	21.9								325	5.0	
74	8.5		178	75.0								309	8.3	
264	11.7		157	29.0								185	12.2	
17	3.8		157	17.4								241	10.1	
308	7.6		221	13.3								23	9.9	
128	7.7		246	7.4								214	7.9	
113	74.7		116	44.0								257	3.7	
200	10.4		344	18.0								20	12.0	
195	6.4		310	21.0								241	4.1	
222	13.4		149	41.9								242	3.2	
254	13.0											186	10.6	
79	22.1											251	3.7	
291	5.7											239	13.4	
187	17.9											339	20.1	
49	30.0											74	8.1	
94	12.4											190	7.4	
299	9.2											204	7.8	
310	5.9											276	9.1	
130	21.0											11	3.2	
157	14.4											229	24.4	
110	17.7											227	13.0	
116	13.2											92	0.1	
154	21.9											222	4.9	
35	40.7											190	5.3	
176	5.1											211	10.5	
192	49.0											256	16.1	
												241	15.8	

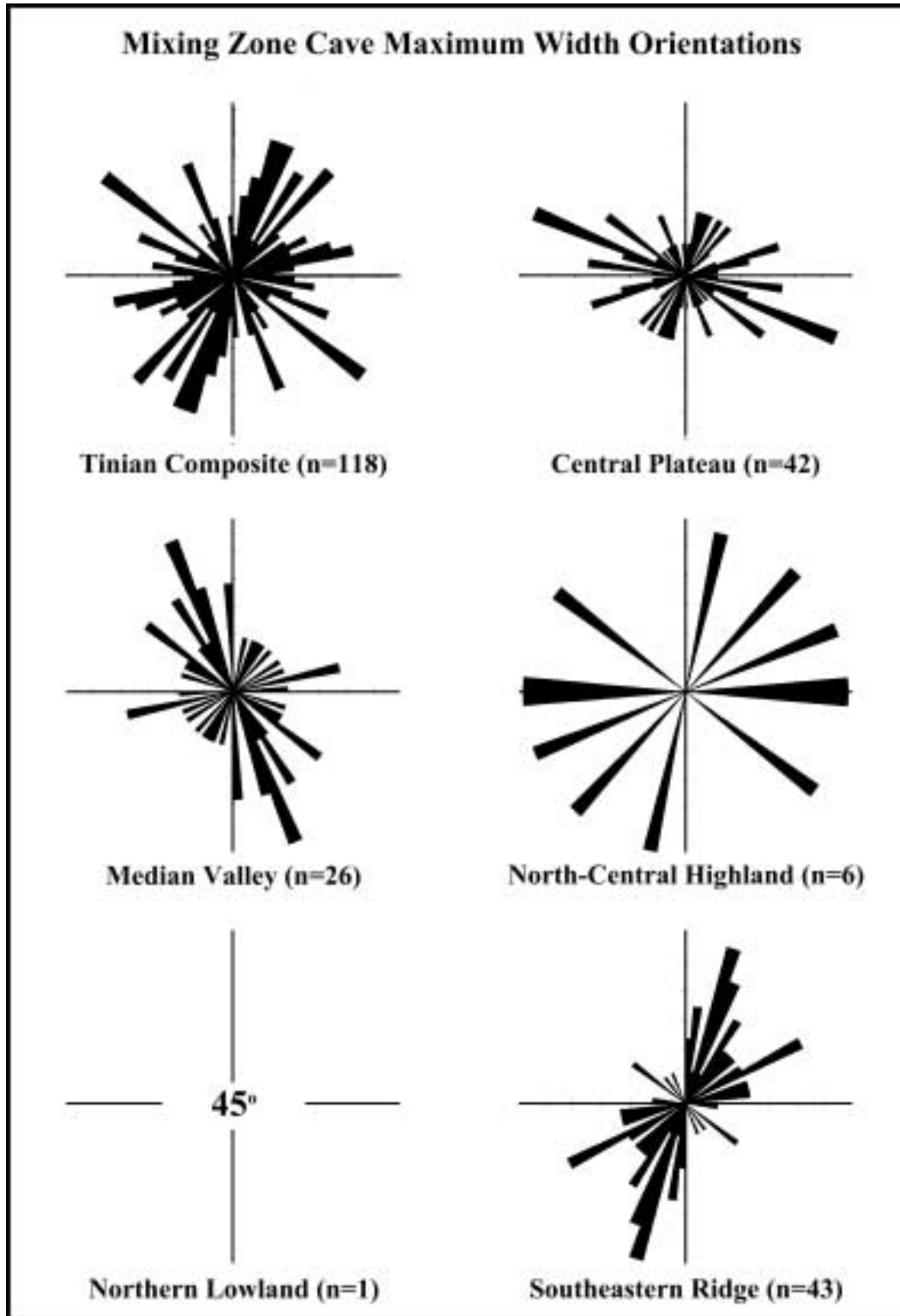


Figure 169: Rose diagrams of mixing zone cave maximum width orientations grouped by physiographic province.

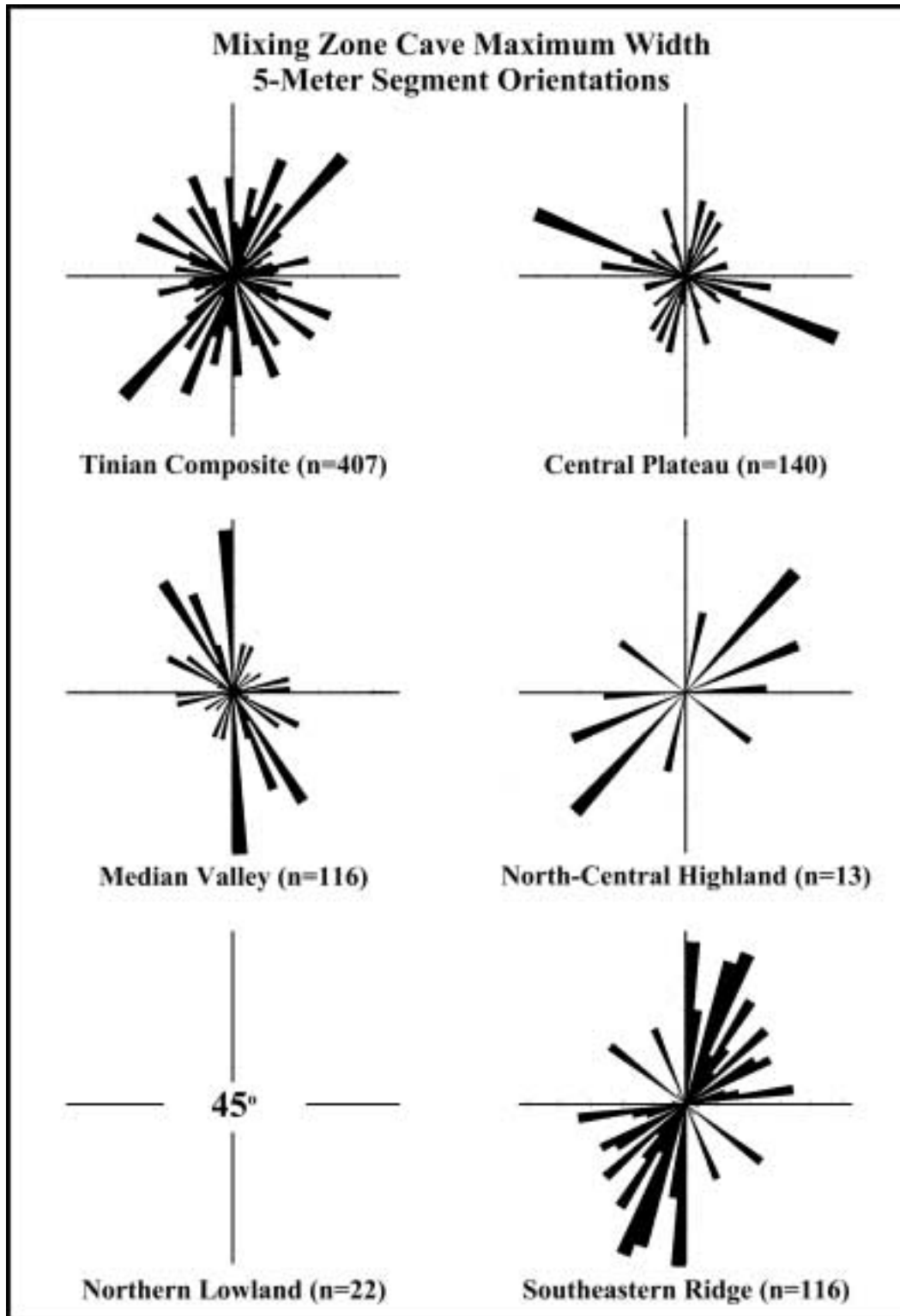


Figure 170: Rose diagrams of mixing zone cave maximum width, five-meter segment orientations grouped by physiographic province.

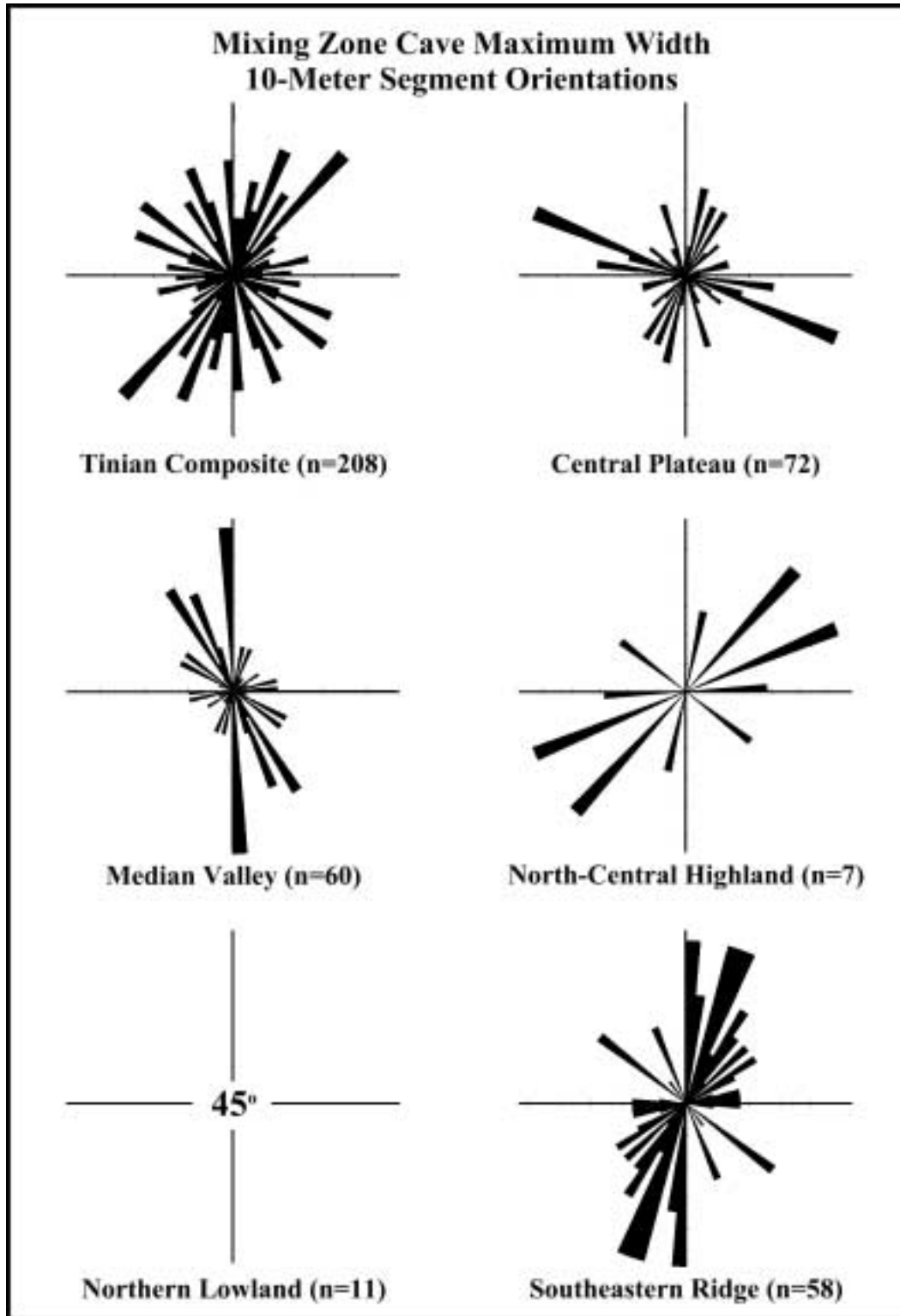


Figure 171: Rose diagrams of mixing zone cave maximum width, ten-meter segment orientations grouped by physiographic province.

Table 10: Faults orientations reported by Doan and coworkers (1960) segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge			Boundary Areas		
Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)	
56	790	2878	42.5	39	183	44.5	1693	87	778	68	750	157	324	84	160		
176	783	1378	39	180		300	1784	157	324	84	160	157	324	84	160		
14.5	1207		39	306		300	1784	157	324	84	160	157	324	84	160		
9	413	696	7	223		39	603	192	421	603	607	192	421	603	607		
15	521	923	14	223		27	693	192	421	603	607	192	421	603	607		
23	408	1378	39	306		40	1387	158	923	72	489	158	923	72	489		
20	479	385	314	309		287	718	32	88	59	379	32	88	59	379		
7	908	194	2	513		188	698	198	132	69	381	198	132	69	381		
198	922	194	40	804		308	378	308	378	24	384	308	378	24	384		
193	579	204	40	804		23	207	207	207	207	207	207	207	207	207		
205	618	623	6	377		16	293	16	293	181	581	16	293	181	581		
303	263	623	23	205		42	664	42	664	338	405	338	405	304	379		
13	194	1793	349	399		223	679	223	679	315	825	223	679	288	684		
20	368	378	36	399		41	93	41	93	207	225	41	93	206	790		
38	877	701	289	505		289	794	289	794	6	878	289	794	47	899		
811	324	701	316	788		56	224	56	224	13	701	56	224	39	583		
523	785	478	233	478		323	308	323	308	73	1198	323	308	359	594		
476	292	785	42	3803		319	182	42	3803	48	694	319	182	341	803		
395	41	938	320	207		309	1007	320	207	3.5	694	309	1007	350	309		
70	688	343	430	308		300	308	430	308	19.5	693	300	308	19.5	693		
612	419	419	17	413		40	281	17	413	186	177	40	281	17	413		
587	419	419	11	419		38	614	11	419	80	493	38	614	80	493		
2184	184	184	306	306		12	1477	306	306	64	933	12	1477	354	369		
207	207	207	324	285				324	285	309	498	324	285	16	624		
207	207	207	78	278				78	278	215	493	78	278	15	597		
222	401	401	72	304				72	304	203	512	72	304	15	502		
766	87	87	72	87				87	87	138	214	72	87	332	320		
513	693	693	164	194				164	194	338	192	164	194	326	310		
524	962	962	154	1168				154	1168	3	608	154	1168	103	316		
676	413	413	154	201				154	201	53	1066	154	201	99	1179		
623	423	423	239	1178				239	1178	53	1066	239	1178	327	264		
584	285	285	47	183				47	183	349	1121	47	183	349	382		
493	924	924	46	294				46	294	349	382	46	294	349	382		
214	493	493	215	317				215	317	349	382	215	317	27	384		
182	221	221	215	478				215	478	349	382	215	478	61	288		
384	304	304	329	302				329	302	27	302	329	302	39	3076		
709	801	801	342	513				342	513	45.5	508	342	513	68	204		
194	156.5	156.5	156.5	1120				156.5	1120	241	1023	156.5	1120	15	379		
37.5	987	987	40	1160				40	1160	241	1023	40	1160	2	169		
43	400	400	12	419				12	419	315	823	12	419	2	169		
18.5	1123	1123	40	807				40	807	32	491	40	807	68	364		
308	513	513	343	301				343	301	330	461	343	301	330	461		
493	173	173	22	564				22	564	298	313	22	564	298	313		
317	281	281	342	935				342	935	300	1282	342	935	27	384		
196	187	187	317	317				317	317	116	307	317	317	2	208		
423	624	624	332	624				332	624	352	778	332	624	3	208		
283	601	601	351	601				351	601	116	1082	351	601	116	1082		
404	978	978	397	978				397	978	116	1082	397	978	116	1082		
176	379	379	328	328				328	328	116	1082	328	328	38	498		
203	932	932	81	598				81	598	48	478	81	598	48	478		
1624	1624	1624								0.1	421			0.1	421		

Table 10 (continued): Fault orientations reported by Doan and coworkers (1960) segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southwestern Ridge			Boundary Areas		
Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)		Fault Orientation	Segment Length (m)	
68	686																
43	716																
43	675																
43	425																
22	394																
43	88																
43	476																
36	523																
37.6	275																
36	321																
67	725																
74	776																
37	1483																
30	398																
16	366																
23	334																
33	297																
103	978																
91	1023																
63	867																
55	779																
40	486																
54	334																
50	393																
94	878																
60	196																
40	779																
38	620																
37	612																
47	566																
28	679																
52	289																
23	308																
302	76																
66	879																
58	394																
69	316																
33	421																
44	385																
72	397																
62	197																
43	406																
242	284																
317	307																

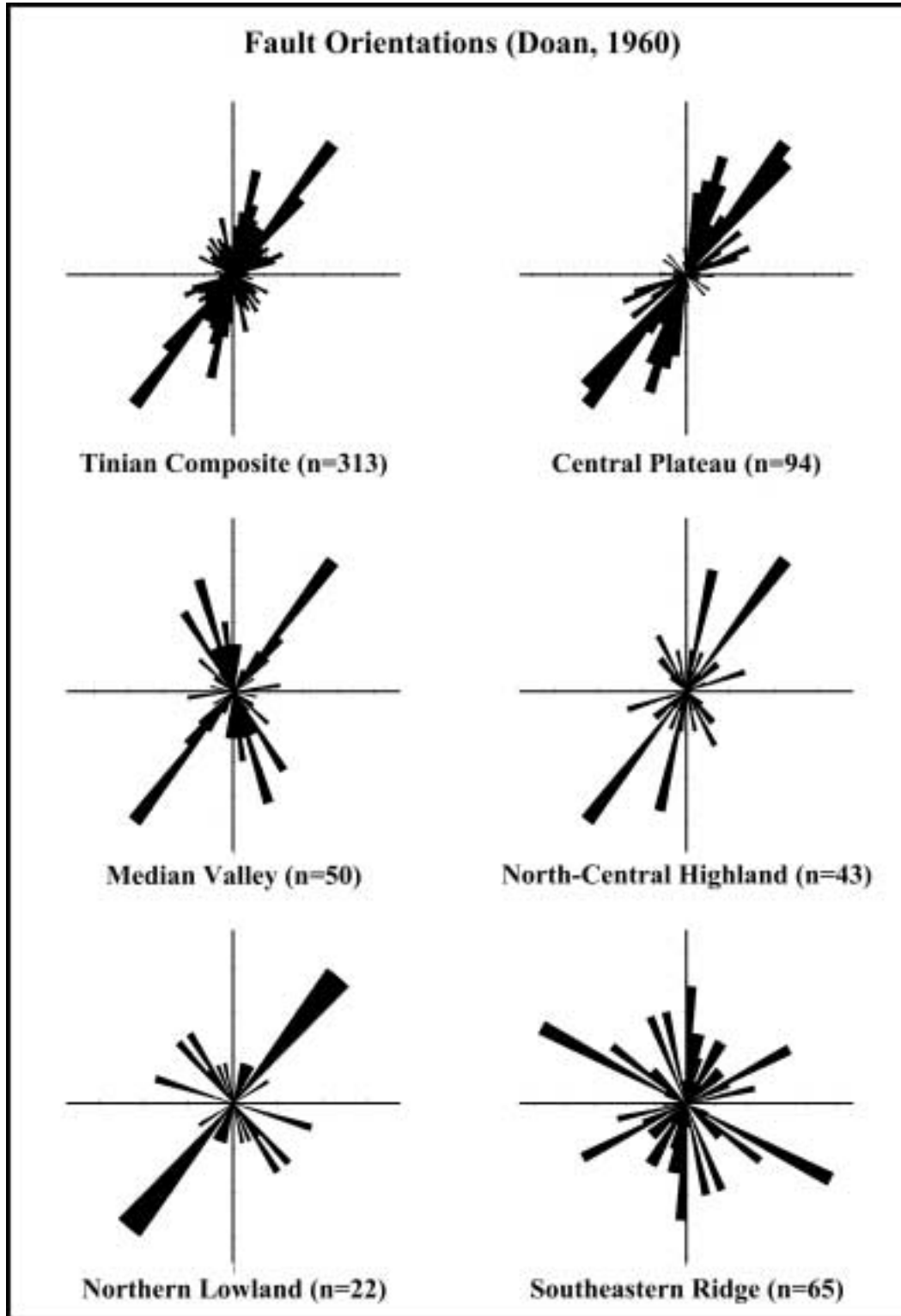


Figure 172: Rose diagrams of fault orientations (Doan et al., 1960) grouped by physiographic province.

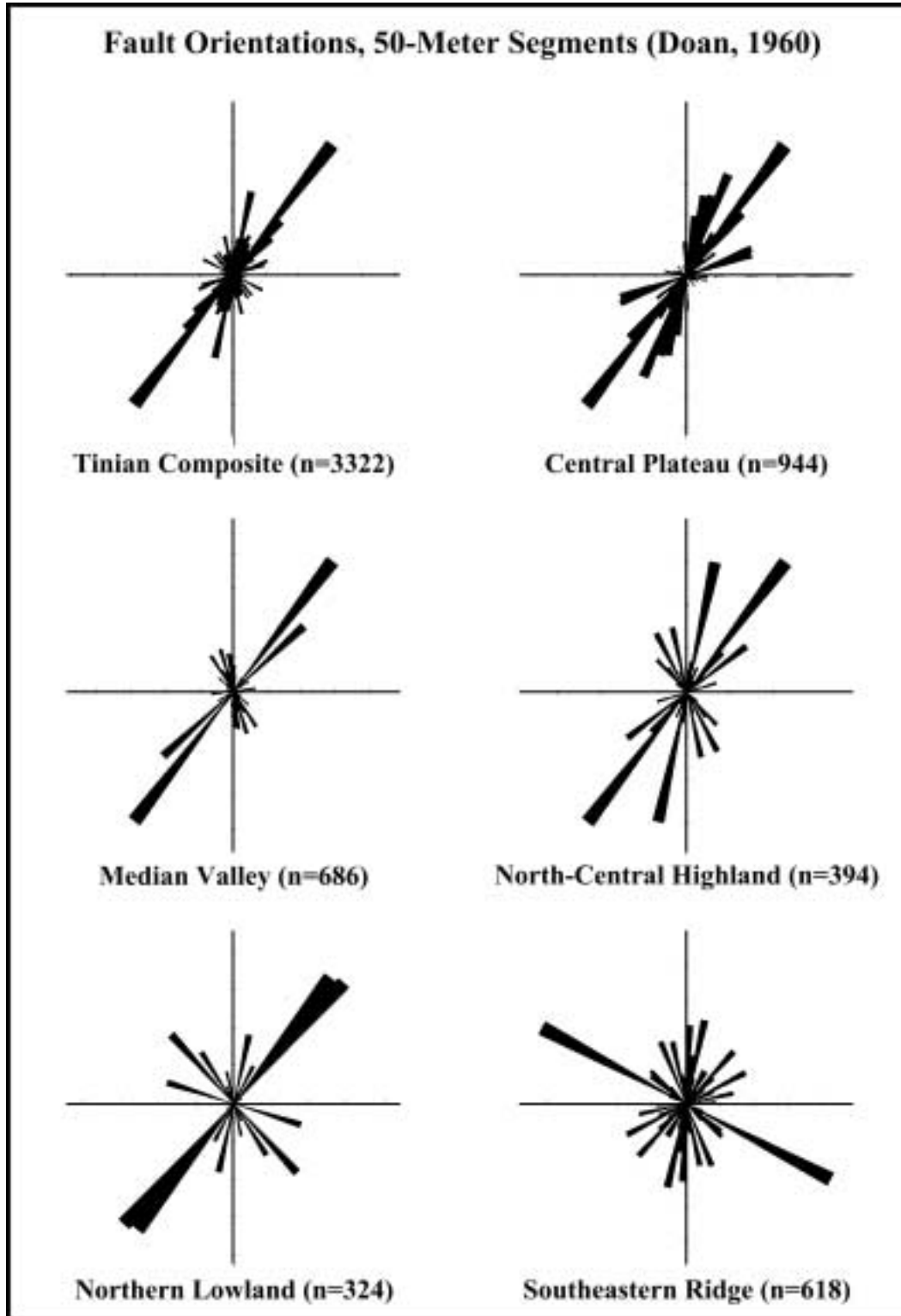


Figure 173: Rose diagrams of fifty-meter, fault segment orientations (Doan et al., 1960) grouped by physiographic province.

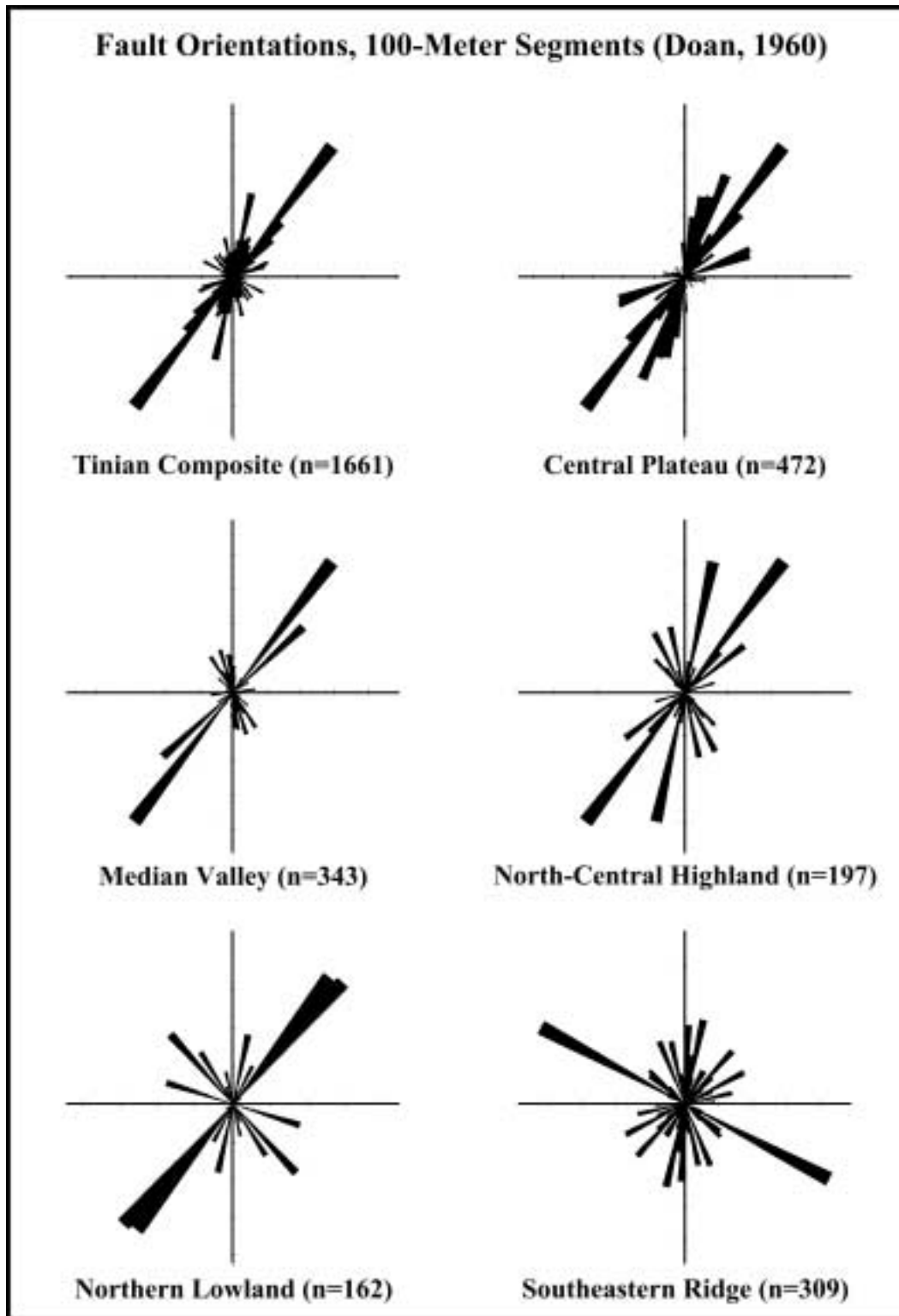


Figure 174: Rose diagrams of one hundred-meter, fault segment orientations (Doan et al., 1960) grouped by physiographic province.

Table 11: Joint (Doan et al., 1960) orientations grouped by physiographic province.

Central Plateau	Median Vally	North-Central Highland	Northern Lowland	Southeastern Ridge
Orientation	Orientation	Orientation	Orientation	Orientation
78	61		281	58
92	339		256	173
70	170		278	171
70	70		87	30
76	53		93	1
74	1		63	9
81	108		285	71
5	168		41	245
116	340		51	89
137	345		66	69
212	350		311	172
218	186		309	208
195	185		303	172
229.5	39		156	106
230	305		136	356
232	10		156	354
226.5	81			28
231	118			12
221	148			188
223	325			170
221	172.5			7
221	191			5
308	164			128
160	195			68
59	7			35
55				287
58				195
79				184
97.5				253
86				250
48				177
63				130
52.5				198
84				
84				
75				
94				
83				

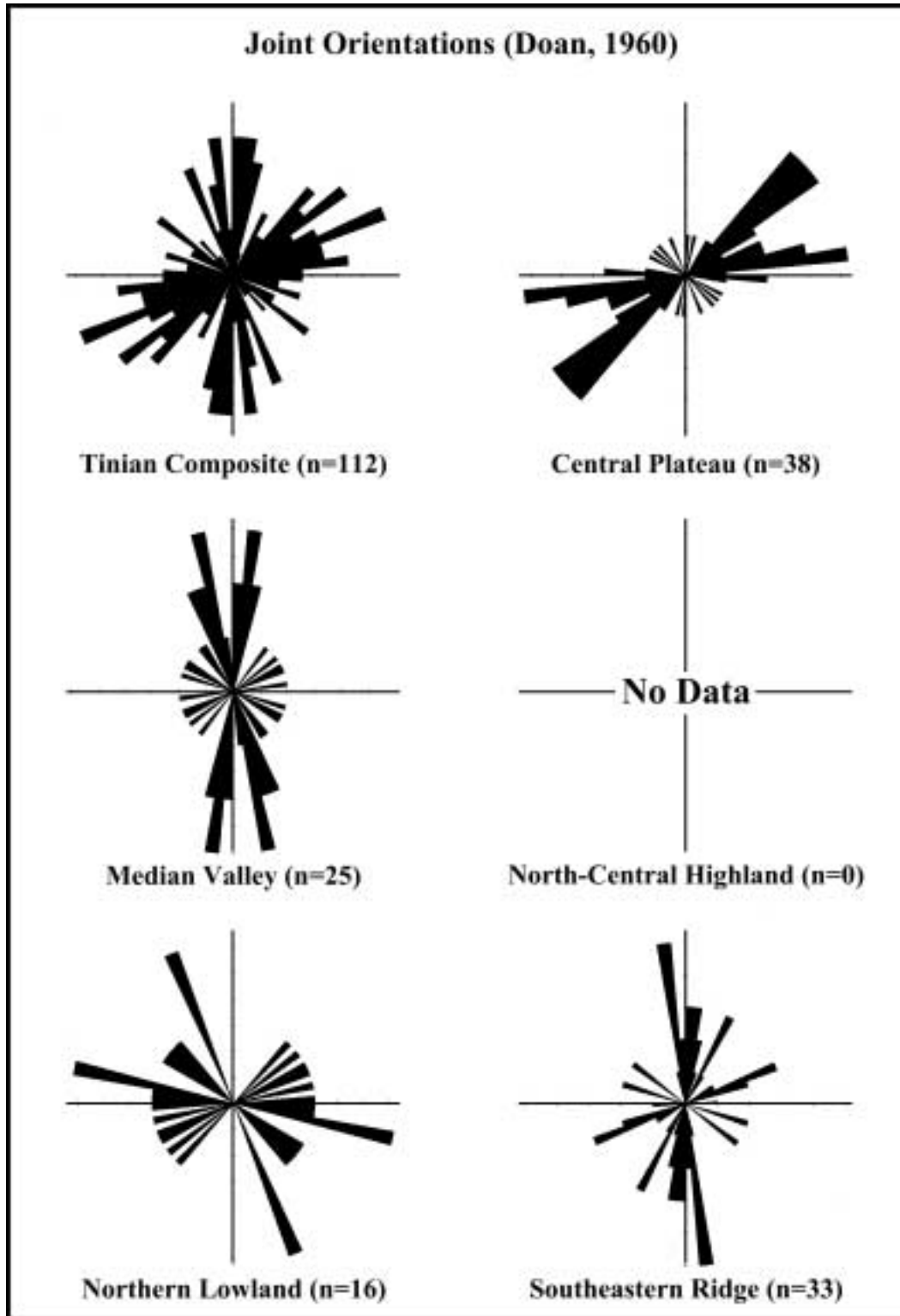


Figure 175: Rose diagrams of joint orientations (Doan et al., 1960) grouped by physiographic province.

Table 12: Fracture orientations measured during fieldwork grouped by physiographic province.

Central Plateau	Median Vally	North-Central Highland	Northern Lowland	Southeastern Ridge
Orientation	Orientation	Orientation	Orientation	Orientation
128	121.5		102	107
158.5	209.5		16	17
114.5	174		332	259
110	77.5		294	173
80	137		163	127
170.5	89		137	132
46	78		102	125
86	134		98	323
83.5	96		301	219
112	344		331	340
261	16.5		127	302
271	42		152	13
248	203		338	251
269	35		122	6
70	16.5		124	313
253	37.5		118	62
264	350.5		310	102
202	320.5		104	352
24	117		147	189
292	64.5		98	209
240	312.5		121	130
240	315		45	292
328	137		292	218
120	224		302	349
98	18.5		283	343
203.5	24		291	266
186	37		268	185
203.5	23.5		291.5	171
290.5	35		253	101
214.5	135.5		246	133
206.5	159.5		289	25
124	142		307.5	284
211	281		107	20
218	340		134	290
234	168		132	19
275.5	188.5		136.5	297
210.5	204		152.5	111
348	309.5		124.5	103
120.5	349		129	181
267	7		133	113
233	186		144	202
108	177		138	40
238.5	165		166	159
227	212		132	40
321.5	331		146.5	30
366	265		158	42
266	353		153	6
296	5.5		137	3
275	268.5		103	315
310	190		108	10
0	193.5		84	
51	219		48	
118	1.77		188	
281	182		186	
227	201		300.5	
66	224		278	

Table 12 (continued): Fracture orientations measured during fieldwork grouped by physiographic province.

Central Plateau	Median Vally	North-Central Highland	Northern Lowland	Southeastern Ridge
Orientation	Orientation	Orientation	Orientation	Orientation
124	175		183.5	
24	347		162.5	
321.5	306		203	
266	5		83	
299	352		91	
261	2		152	
5	3.5		192	
1	2		178	
43	316.5		167	
14	321		112	
0.5	266		171	
11	178		202	
43	185		51	
345	307		73	
64	331		209	
92.5	358.5		332	
149.5	2		203	
5	296		202	
243	197.5		39	
60	249		22	
247	332		211	
208	345		216	
62	75		37	
49	180		229	
238	20		97	
63	181		154	
288	186		204	
221	255		16	
284.5	336		146	
240.5	216.5		137.5	
327	9.5			
339	210			
346	305			
1	24			
60	331			
28	8			
356	65			
34	2			
336	61			
354	36			
2.5	93			
4.5	44			
265.5	28			
339.5	90			
333	21			
296	34			
327	65			
	65			
	51.5			
	6			

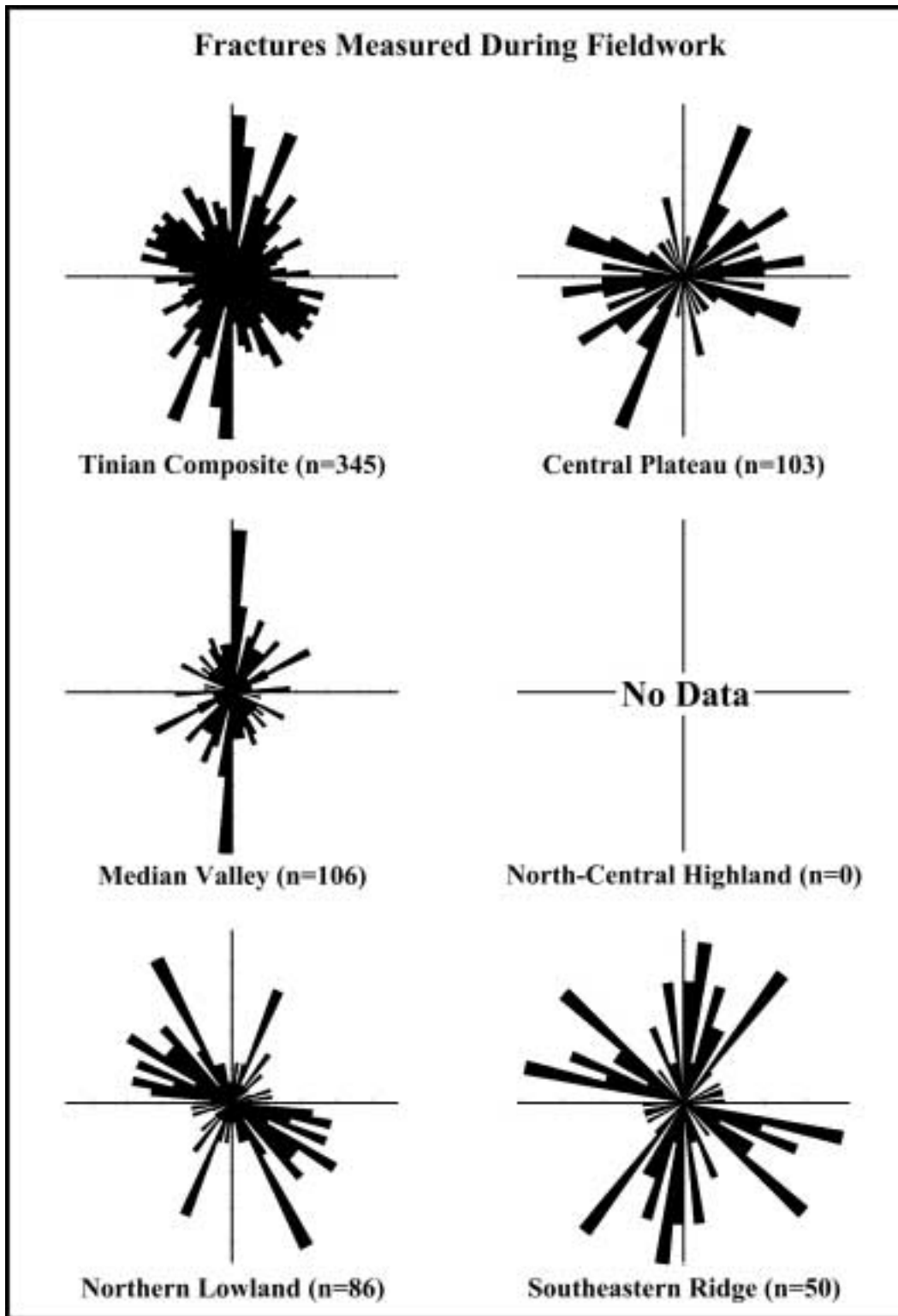


Figure 176: Rose diagrams of orientations of fractures measured during fieldwork grouped by physiographic province.

Table 13: Inland scarp segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)	
142	174.2		22	348.4	7	406.5						170	271.0	
100	116.1		338	116.1	350	309.7							193.5	
125	154.8		0	96.8	9	271.0							113	251.6
92	154.8		343	212.9	19	348.4							70	212.9
100	251.6		9	154.8	25	406.5							8	116.1
2	290.3		29	290.3	43	154.8							43	174.2
310	116.1		61	135.5	350	174.2							92	58.1
268	135.5		46	271.0	269	522.6							21	36.7
310	58.1		324	154.8	314	309.7							39	193.5
275	116.1		1	367.7	279	135.5							7	58.1
240	77.4		68	96.8	41	154.8							34	212.9
293	135.5		42	96.8	4	174.2							49	116.1
270	58.1				26	271.0							229	212.9
242	271.0				4	193.5							223	193.5
289	503.2				47	96.8							227	135.5
19	309.7				2	58.1							223	261.6
8	96.8				314	251.6							218	193.5
35	212.9				309	425.0							224	174.2
32	232.3				356	96.8							221	135.5
123	348.4				334	193.5							227	232.3
96	290.3				289	116.1							233	261.6
104	290.3				335	348.4							267	194.8
71	735.3				8	290.3							310	193.5
86	367.7				33	329.0							6	116.1
59	96.8				4	135.5							13	174.2
100	387.1				54	174.2							362	348.4
77	212.9				22	406.5							29	77.4
72	503.2				36	251.6							4	135.5
					3	77.4							52	96.8
					69	483.9							90	116.1
													55	135.5
													18	174.2
													22	174.2
													35	367.1
													4	135.5
													50	580.6
													103	464.5
													129	251.6
													367	193.5
													330	522.6
													321	251.6
													5	329.0

Table 13 (continued): Inland scarp segment orientations with segment length grouped by physiographic province.

Central Plateau		Median Valley		North-Central Highland		Northern Lowland		Southeastern Ridge	
Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)
								351	493.9
								242	193.5
								330	309.7
								238	367.7
								224	445.2
								222	793.8
								307	340.4
								205	329.0
								207	329.0
								176	86.8
								229	174.2
								176	136.8
								213	212.9
								268	58.1
								243	154.8
								200	174.2
								234	136.5
								47	116.1
								362	271.0
								17	232.3
								335	212.8
								37	387.1
								331	154.8
								8	251.6
								350	271.0
								279	929.0
								2	445.2
								333	174.2
								2	116.1
								306	193.5
								324	136.5
								364	425.8
								99	193.5
								34	445.2
								14	619.4
								7	232.3
								21	329.0
								2	116.1
								337	136.5
								0	271.0
								1	174.2
								295	212.9
								88	309.7

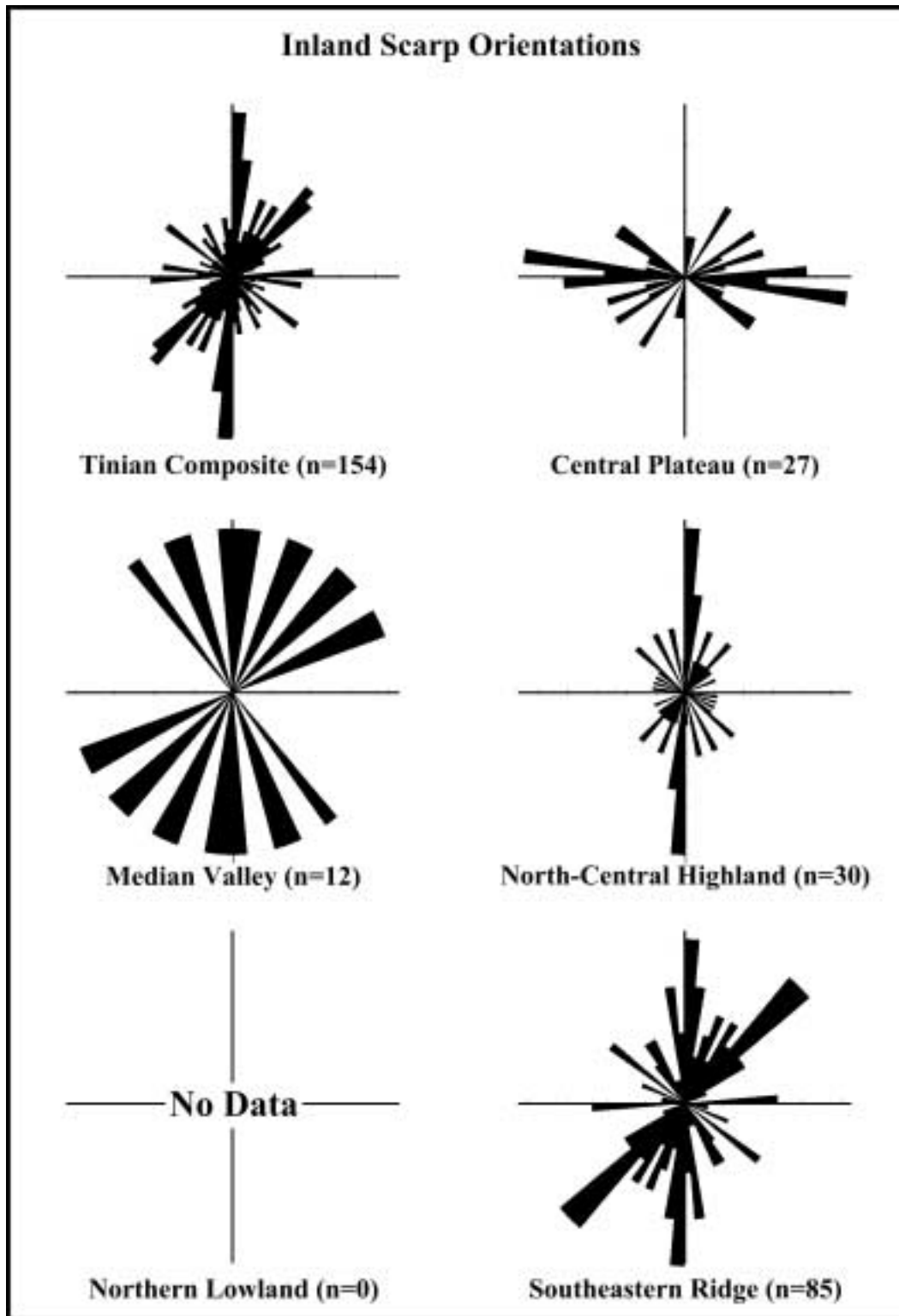


Figure 177: Rose diagrams of inland scarp orientations grouped by physiographic province.

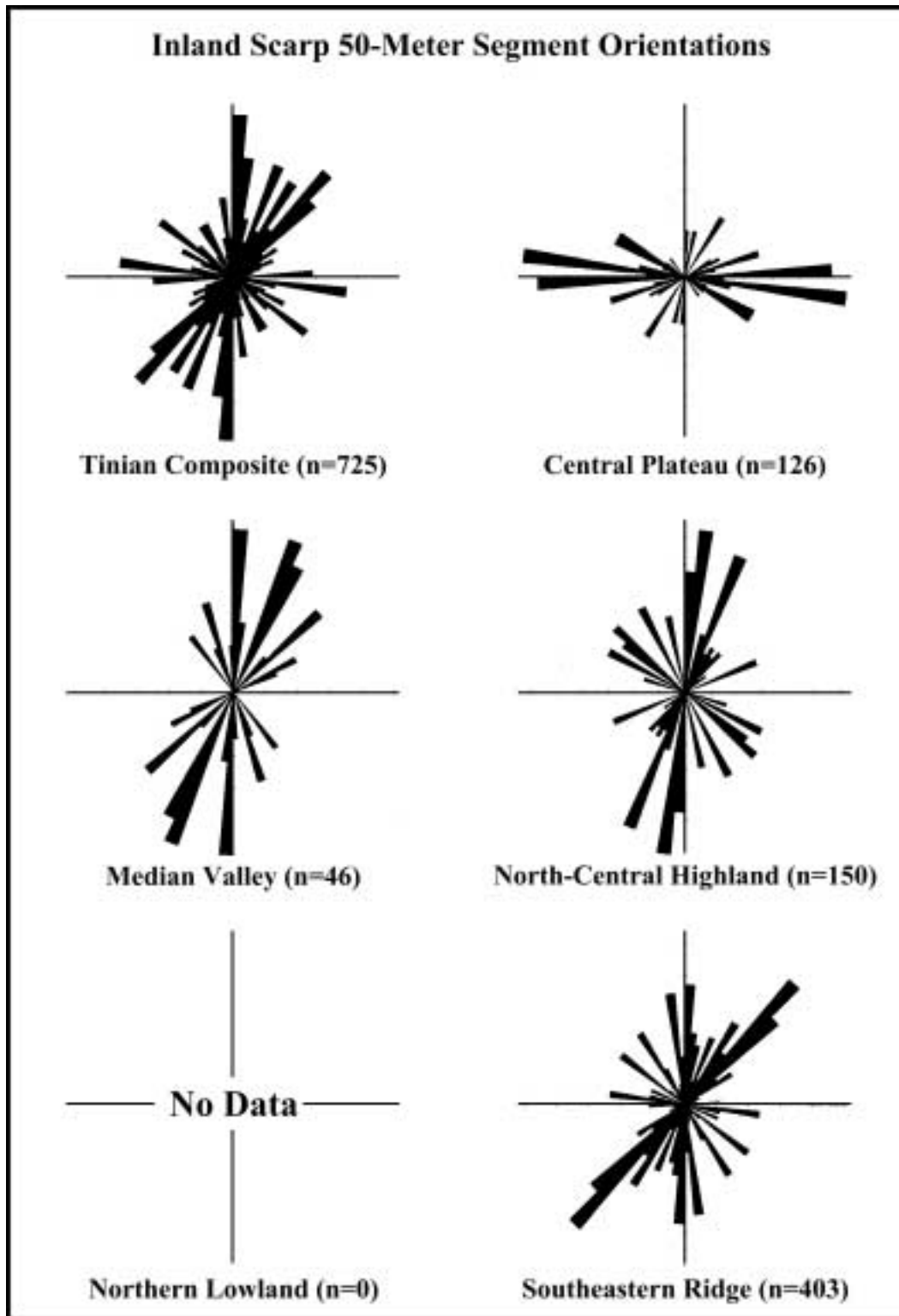


Figure 178: Rose diagrams of inland scarp, fifty-meter segment orientations grouped by physiographic province.

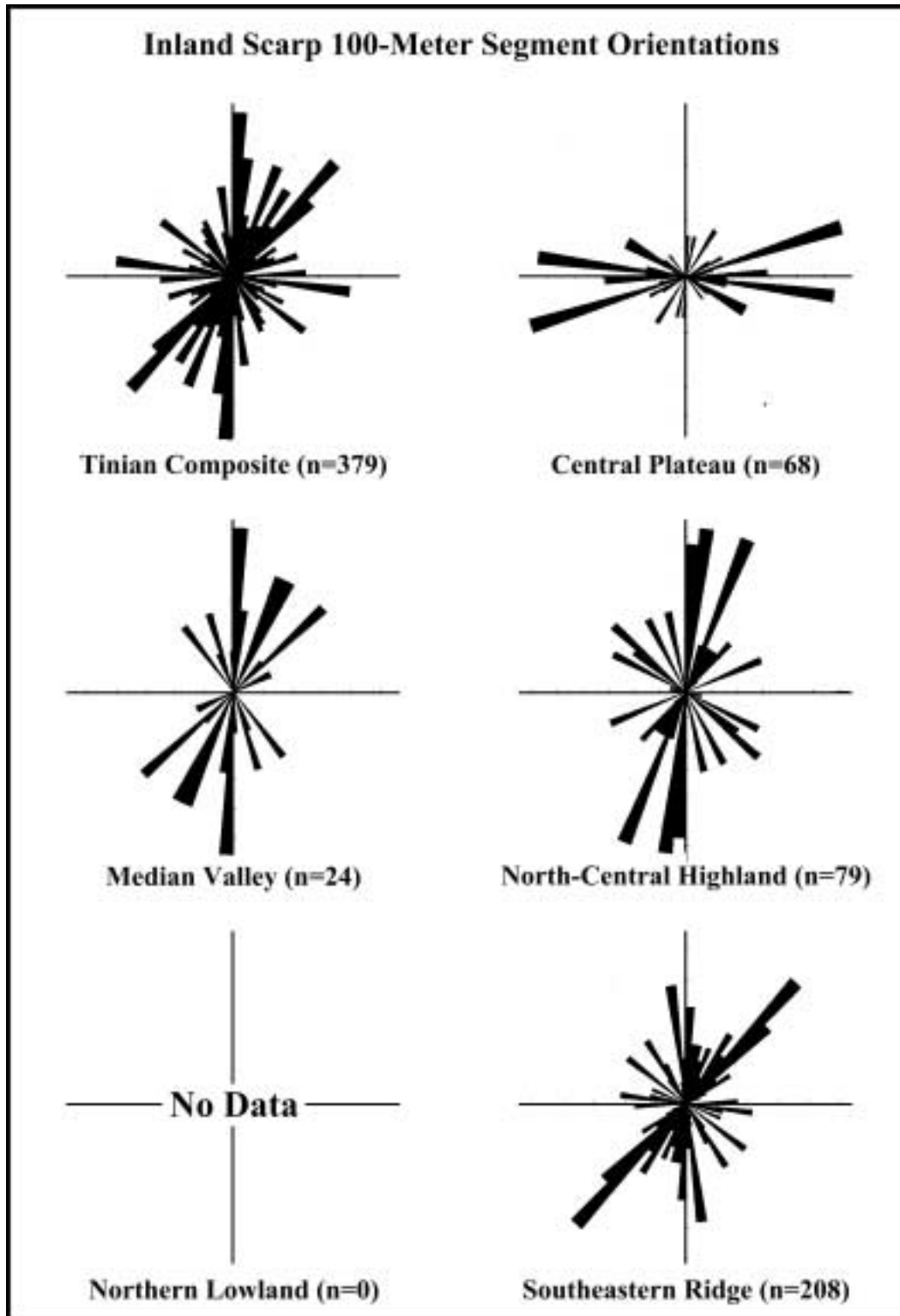


Figure 179: Rose diagrams of inland scarp, one hundred-meter segment orientations grouped by physiographic province.

Table 14: Coastal scarp segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)		Scarp Orientation	Segment Length (m)	
8	77.4		158	193.5					93	193.5				
63	174.2		122	116.1					77	116.1				
90	212.9		118	193.5					91	387.7				
65	96.8								138	232.3				
90	212.9								111	116.1				
112	309.7								151	581.3				
135	174.2								188	135.5				
168	154.8								182	116.1				
193	154.8								124	251.6				
94	77.4								162	135.5				
147	212.9								190	174.2				
101	193.5								189	493.9				
203	116.1								191	251.6				
218	291.6								225	96.8				
218	154.8								149	96.1				
193	36.7								197	77.4				
228	212.9								196	212.9				
201	58.1								197	271.0				
228	116.1								194	387.1				
223	290.3								177	96.8				
218	77.4								211	135.0				
242	116.1								196	212.9				
220	77.4								211	387.7				
258	77.4								226	271.0				
180	38.7								190	58.1				
192	116.1								258	96.8				
141	116.1								119	96.8				
115	193.5								188	96.8				
178	212.9								148	290.3				
227	96.8								175	116.1				
204	116.1								185	77.4				
185	212.9								210	116.1				
187	464.5								151	58.1				
223	367.7								242	96.8				
254	77.4								213	212.9				
242	193.5								212	309.7				
285	232.3								155	77.4				
313	96.8								206	174.2				
216	135.5								82	77.4				
175	58.1								185	212.9				
202	271.0								184	212.9				
206	425.0								181	483.9				

Table 14 (continued): Coastal scarp segment orientations with segment length grouped by physiographic province.

Central Plateau		Median Valley		North-Central Highland		Northern Lowland		Southeastern Ridge	
Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)	Scarp Orientation	Segment Length (m)
130	77.4							155	212.9
153	98.8							168	193.5
236	193.5							103	174.2
184	77.4							167	77.4
196	359.7							234	116.1
98	193.5							150	77.4
143	174.2							201	77.4
186	98.8							266	290.3
103	38.7							230	98.8
144	135.5							266	212.9
153	98.8							234	425.8
221	232.3							263	174.2
235	77.4							212	541.9
192	98.8							162	135.5
201	271.0							148	116.1
185	98.8							167	174.2
158	116.1							224	271.0
121	135.5							218	308.7
103	174.2							204	387.1
123	98.8							216	251.6
90	58.1							165	58.1
50	77.4							225	58.1
80	58.1							270	77.4
								221	251.6
								243	271.0
								260	308.7
								263	251.6
								305	232.3
								321	98.8
								17	58.1
								206	58.1
								352	98.8
								310	77.4
								348	154.8
								18	154.8
								337	387.1
								11	271.0

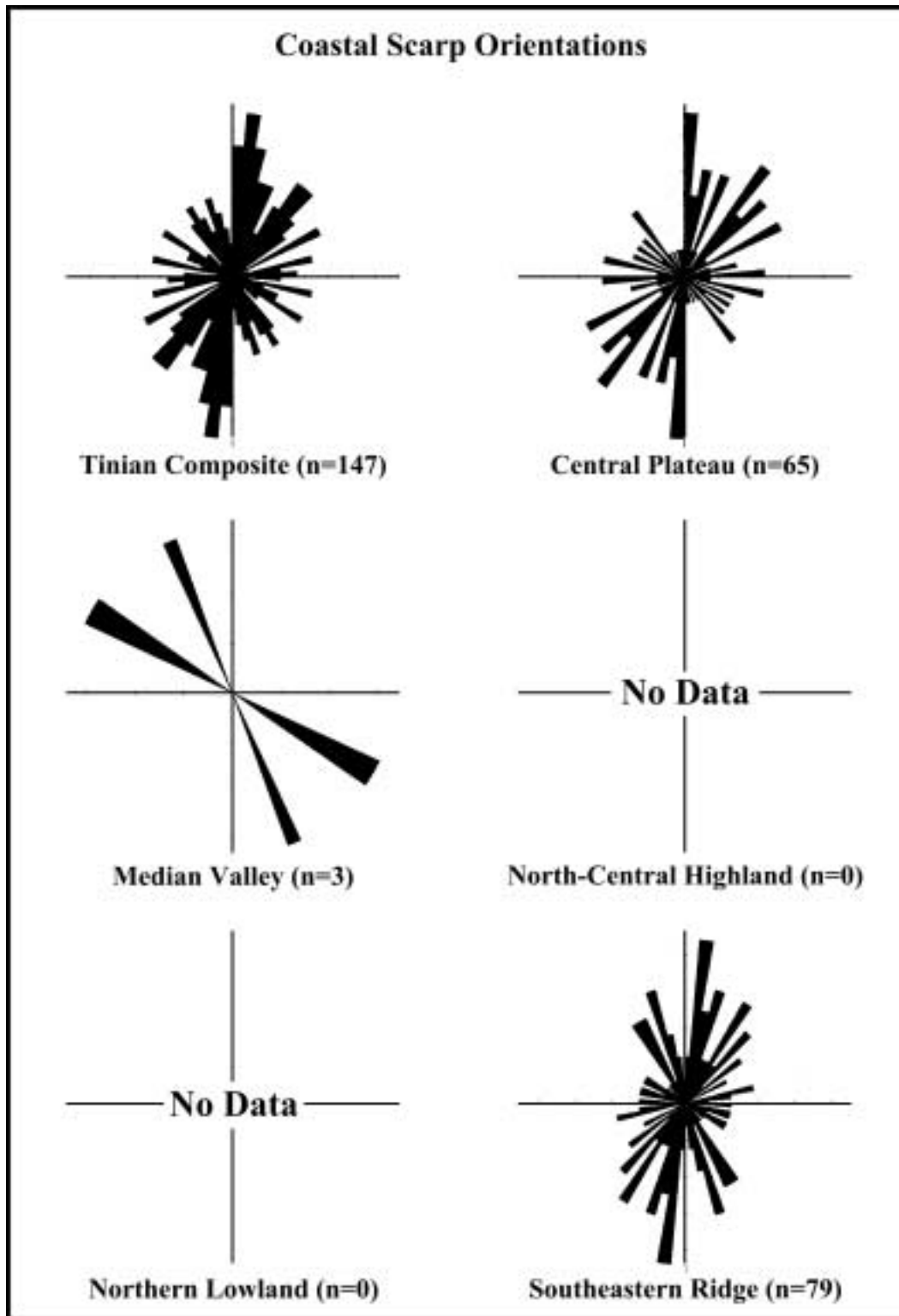


Figure 180: Rose diagrams of coastal scarp orientations grouped by physiographic province.

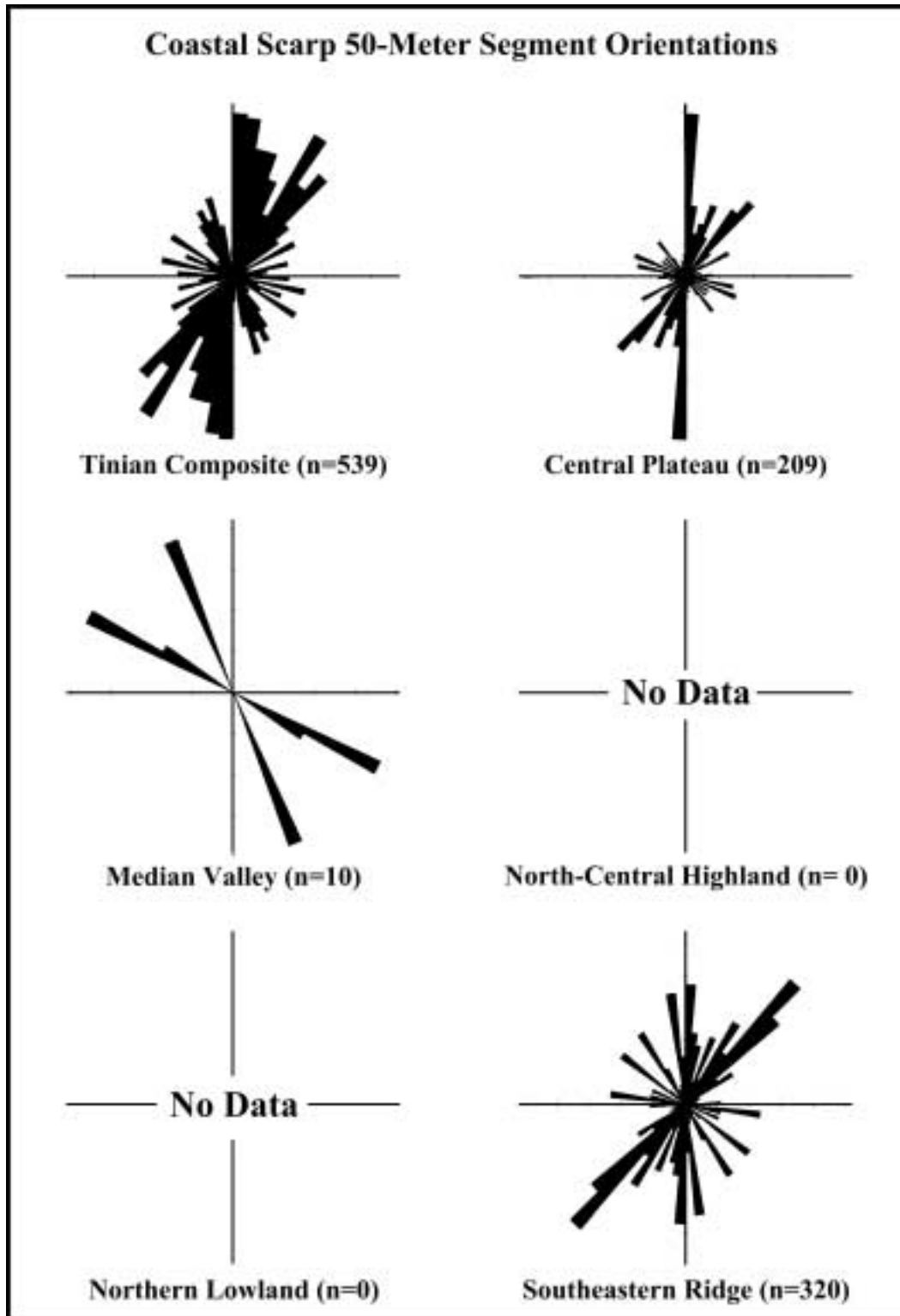


Figure 181: Rose diagrams of coastal scarp, fifty-meter segment orientations grouped by physiographic province.

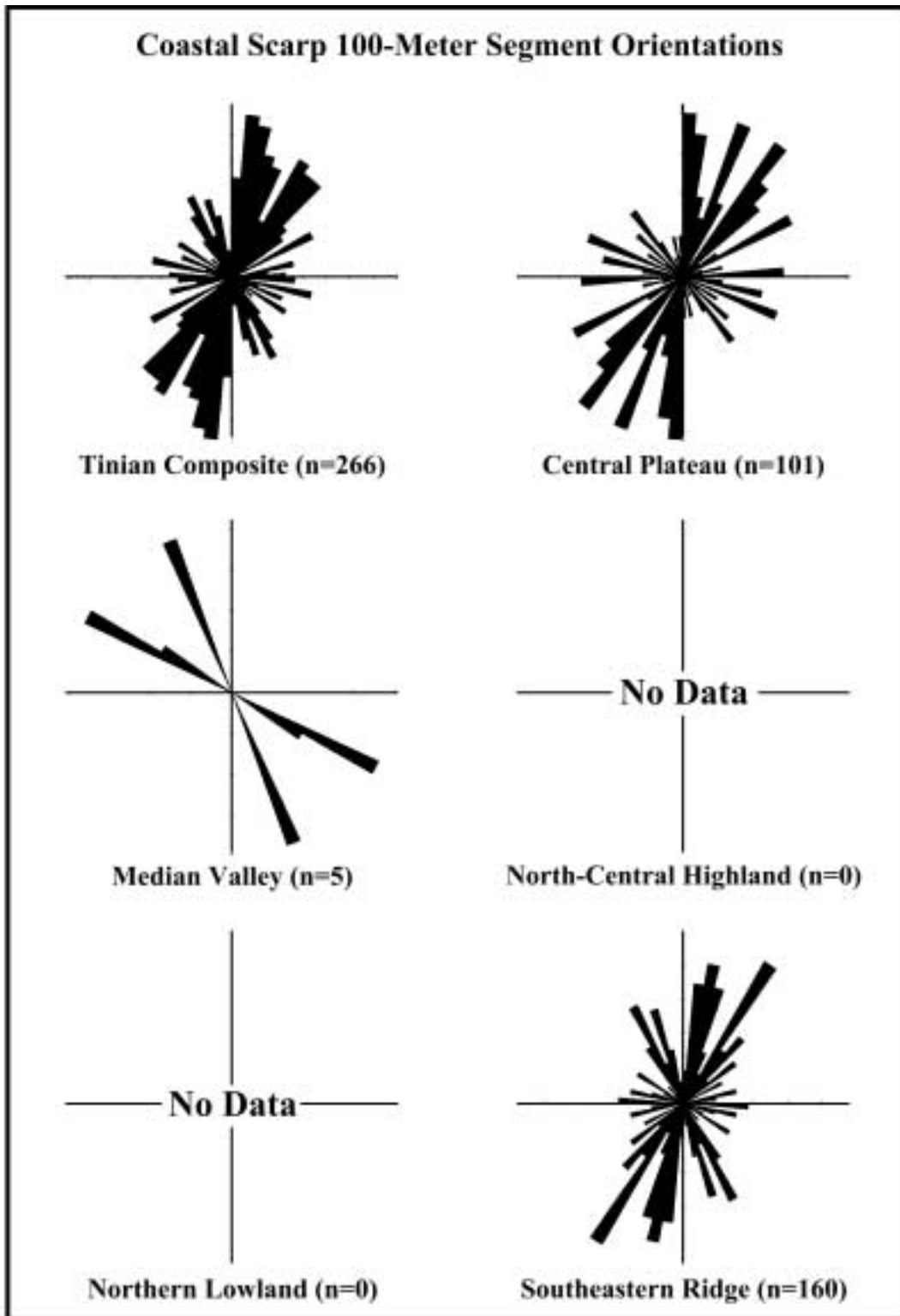


Figure 182: Rose diagrams of coastal scarp, one hundred-meter segment orientations grouped by physiographic province.

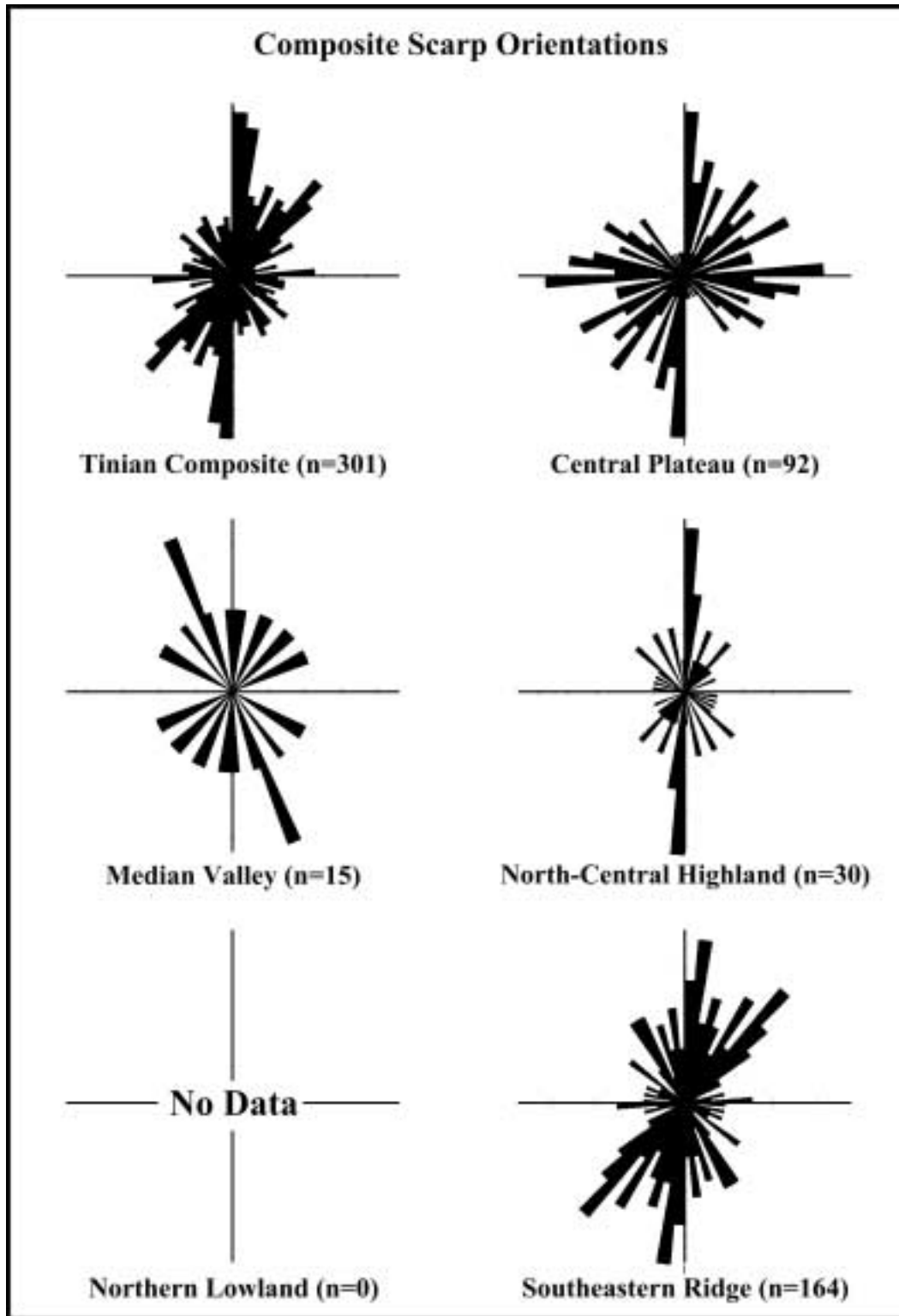


Figure 183: Rose diagrams of composite scarp orientations grouped by physiographic province.

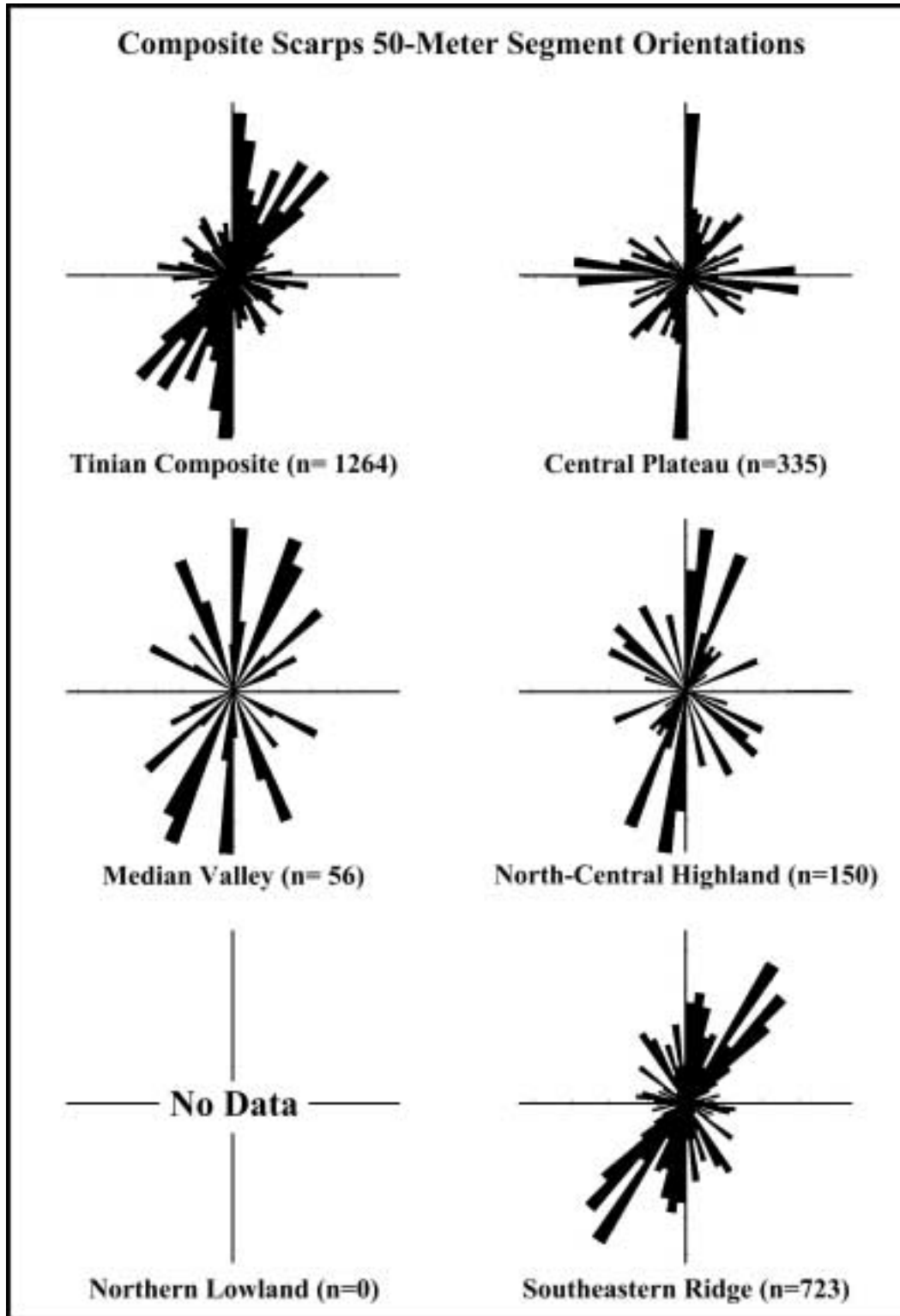


Figure 184: Rose diagrams of composite scarp, fifty-meter segment orientations grouped by physiographic province.

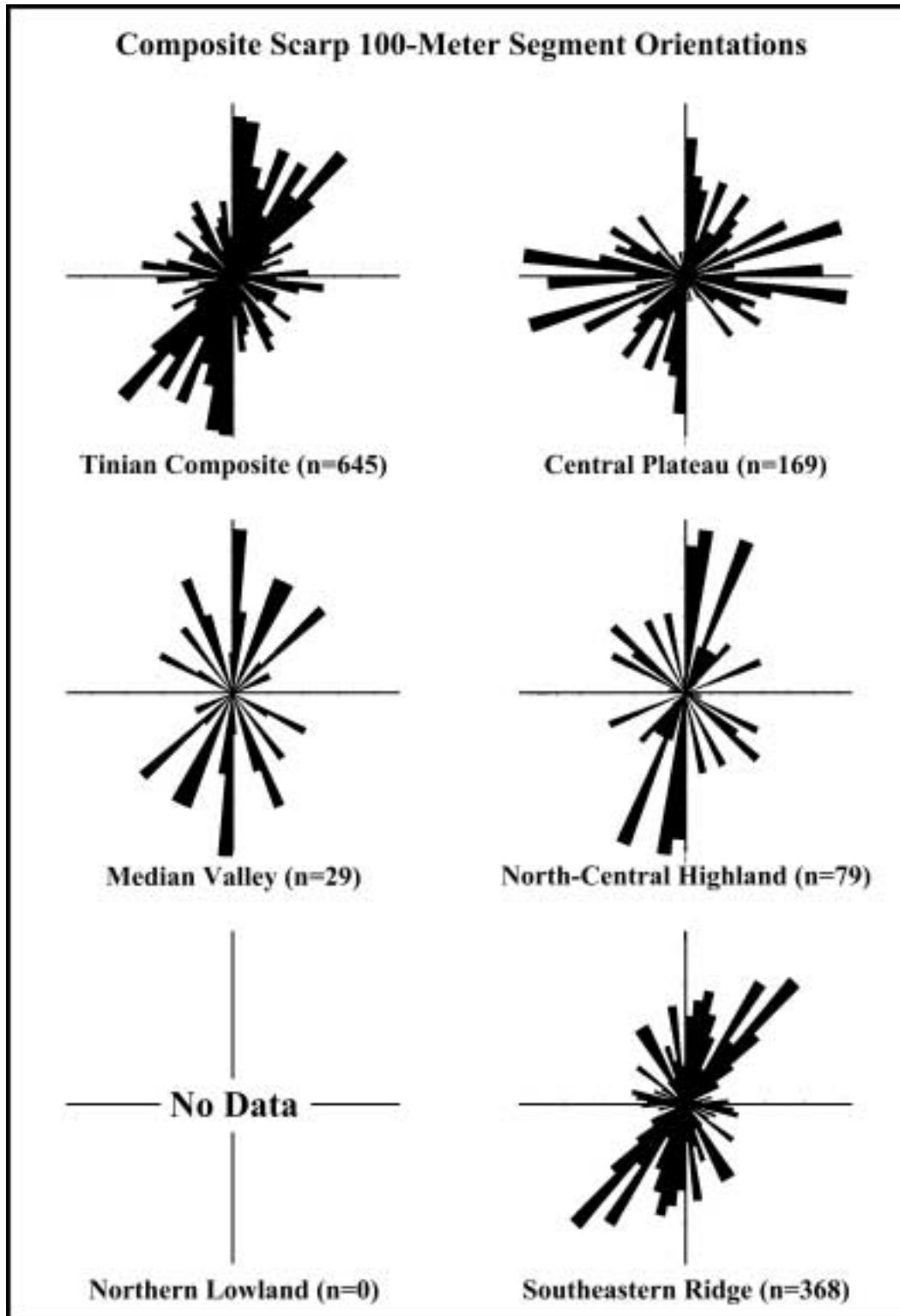


Figure 185: Rose diagrams of composite scarp, one hundred-meter segment orientations grouped by physiographic province.

Table 15: Coastline segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)	
195	367.7		105	116.1					15	58.1		83	193.5	
183	309.7		138	135.0					55	420.8		77	116.1	
180	96.8		188	77.4					53	212.9		91	367.7	
113	77.4		103	116.1					40	426.8		138	232.3	
168	135.0		138	271.0					42	957.1		111	116.1	
128	193.5		198	212.8					43	445.2		151	661.3	
236	58.1		189	329.0					47	183.2		188	136.8	
18	69.7		171	193.0					16	232.3		162	116.1	
177	184.8		178	232.3					36	212.9		124	251.6	
186	184.8		142	135.0					61	135.0		162	136.8	
180	193.5		118	232.3					76	96.8		190	174.2	
190	174.2		97	135.0					54	329.0		196	463.8	
151	96.8		122	832.3					37	463.8		191	251.6	
107	201.6		124	194.8					44	232.3		225	96.8	
56	116.1		141	329.0					64	309.7		148	58.1	
131	96.8		155	677.4					53	251.6		197	77.4	
84	135.0		178	135.0					22	193.5		188	212.8	
234	135.0		127	96.1					37	329.0		197	271.0	
151	58.1		150	194.8					40	522.8		194	367.1	
8	77.4		178	194.8					46	463.8		177	96.8	
63	174.2		201	96.8					50	212.9		211	135.0	
90	212.9		201	348.4					74	116.1		196	212.8	
85	96.8		180	201.6					117	116.1		211	367.7	
90	212.9		122	116.1					140	271.0		226	271.0	
112	309.7		174	135.0					139	271.0		190	58.1	
135	174.2		233	96.1					197	58.1		258	96.8	
168	194.8		159	77.4					119	96.8		119	96.8	
193	184.8		117	38.7					145	406.4		198	96.8	
94	77.4		163	96.1					128	154.8		148	280.3	
147	212.9		163	96.1					153	426.8		175	116.1	
181	193.5		231	77.4					162	445.2		188	77.4	
203	116.1		181	212.9					177	193.5		210	116.1	
218	251.6		148	96.8					188	348.4		151	58.1	
218	184.8		171	96.8					192	445.2		242	96.8	
183	36.7		248	36.7					187	136.8		213	212.9	
226	212.9		170	464.5					196	174.2		212	309.7	
281	58.1		168	212.9					178	200.3		155	77.4	
226	116.1		117	135.0					174	271.0		208	174.2	
218	290.3		167	348.4					168	193.5		82	77.4	
218	77.4		138	174.2					176	174.2		185	232.3	
242	116.1		176	77.4					156	174.2		184	212.9	
220	77.4		135	135.0								161	463.8	

Table 15 (continued): Coastline segment orientations with segment length grouped by physiographic province.

Central Plateau			Median Valley			North-Central Highland			Northern Lowland			Southeastern Ridge		
Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)		Coast Orientation	Segment Length (m)	
258	77.4		166	154.8								155	212.9	
182	38.7		165	135.5								168	193.5	
192	116.1		152	212.9								103	174.2	
141	116.1		158	193.5								167	77.4	
115	193.5		122	116.1								234	116.3	
176	212.9		118	193.5								150	77.4	
227	96.8											201	77.4	
204	116.1											266	250.3	
185	212.9											232	96.8	
187	464.5											266	212.9	
223	367.7											234	426.8	
254	77.4											263	174.2	
242	193.5											212	541.9	
285	232.3											182	135.5	
313	96.8											146	116.1	
216	135.5											187	174.2	
175	96.3											224	271.0	
202	271.0											218	309.7	
206	425.8											204	387.1	
130	77.4											216	251.6	
183	96.8											165	58.1	
236	193.5											226	58.1	
184	77.4											270	77.4	
196	309.7											221	251.6	
98	193.5											243	271.0	
143	174.2											260	309.7	
186	96.8											263	251.6	
103	38.7											300	232.3	
144	135.5											321	96.8	
163	96.8											17	58.1	
221	232.3											266	58.1	
235	77.4											352	96.8	
192	96.8											310	77.4	
201	271.0											346	154.8	
185	96.8											16	154.8	
158	116.1											337	387.1	
121	135.5											11	271.0	
103	174.2													
123	96.8													
96	58.1													
90	77.4													
60	58.1													

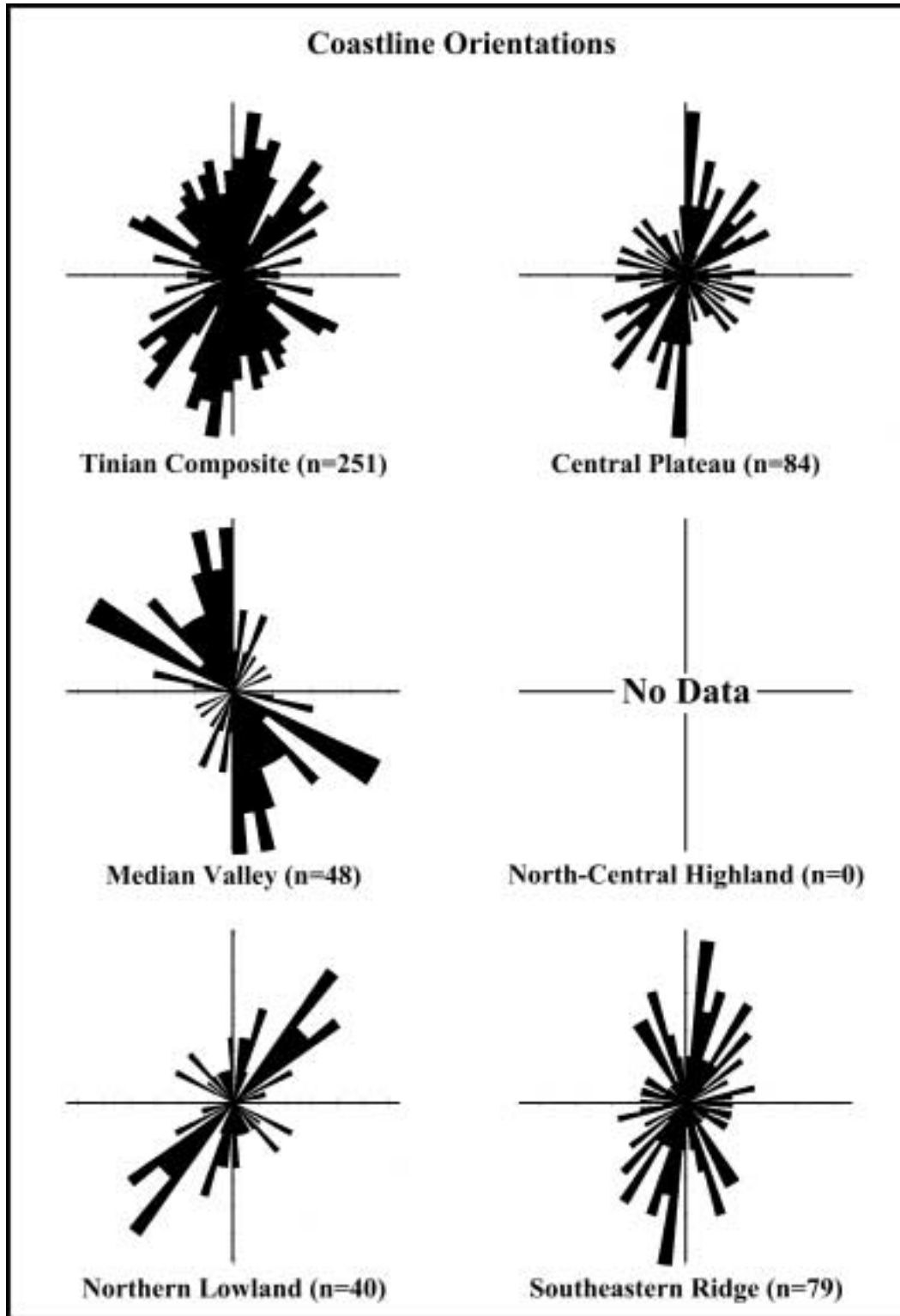


Figure 186: Rose diagrams of coastline orientations grouped by physiographic province.

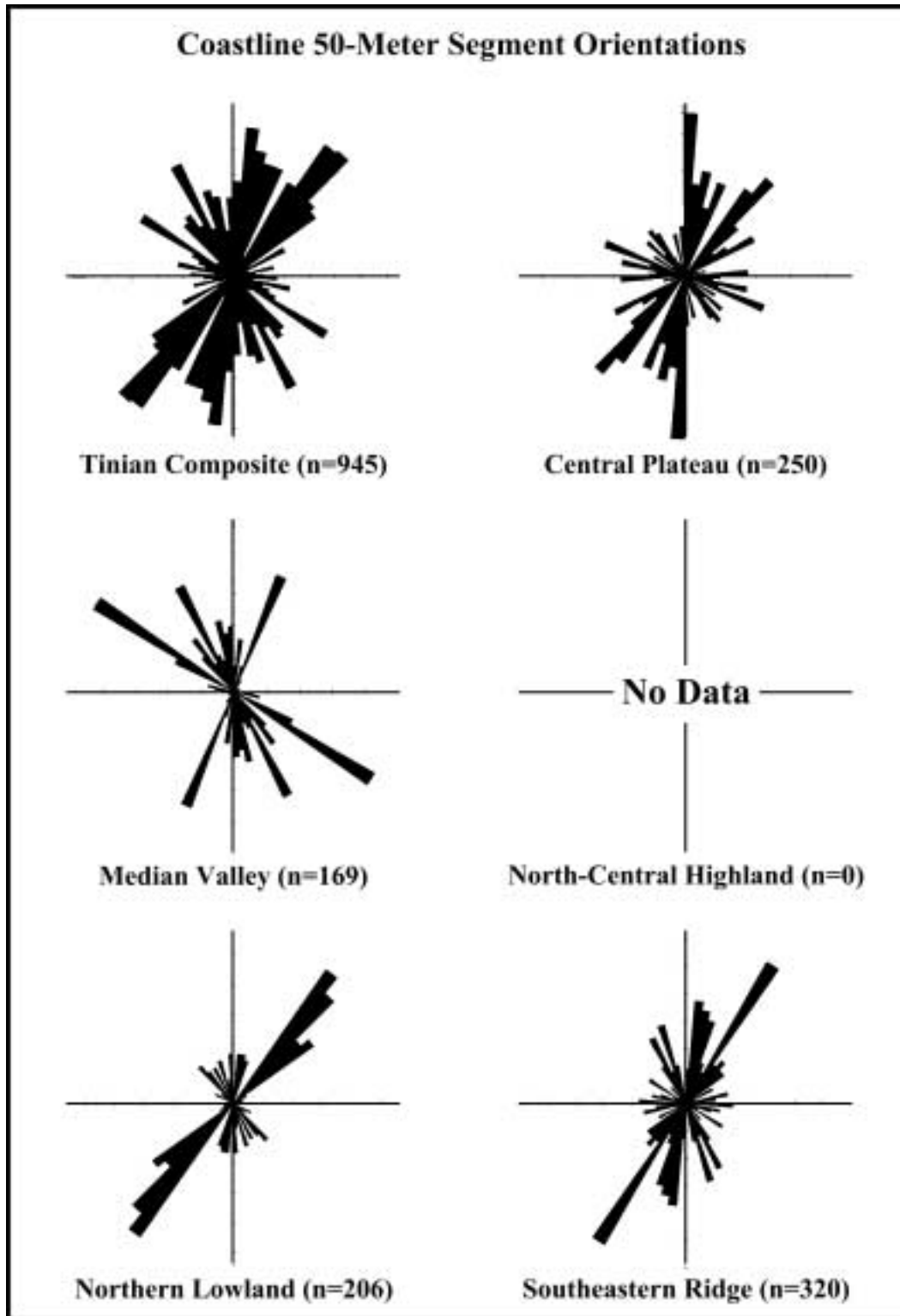


Figure 187: Rose diagrams of coastline, fifty-meter segment orientations grouped by physiographic province.

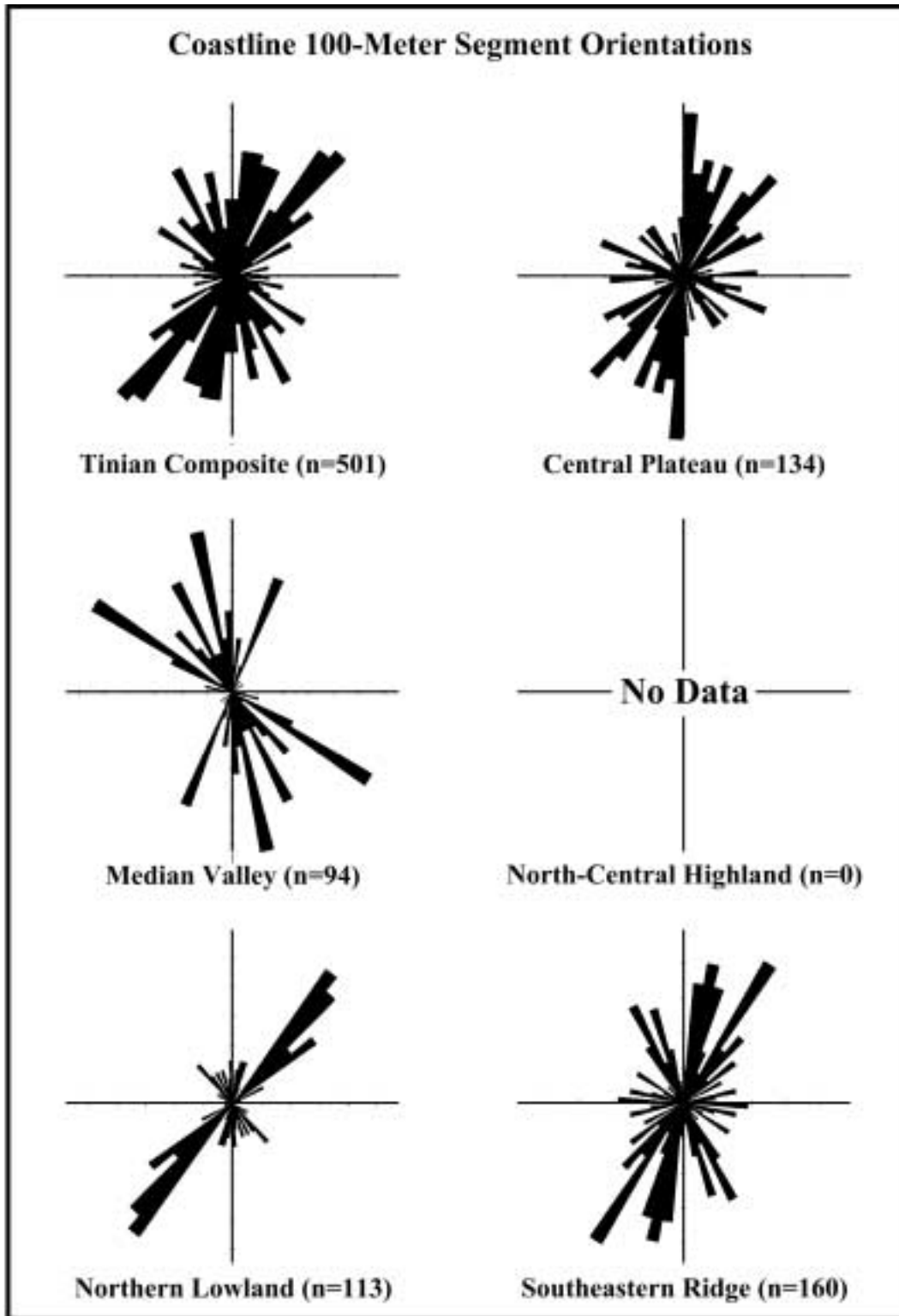


Figure 188: Rose diagrams of coastline, one hundred-meter segment orientations grouped by physiographic province.